

The Iron Age

A Review of the Hardware, Iron and Metal Trades.

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Transfer Lathe.

It is frequently necessary in the arts—for instance, in making the copper, iron or steel rolls for calico printing, or the embossing rolls for leather, cloth, sheet zinc, brass or other sheet metals—to transfer any design from small pattern rolls to the large ones upon which the design is to be engraved. To do this work rapidly, cheaply and with accuracy, transfer lathes are used such as that we show in the accompanying illustration, which is a machine built by Messrs. A. J. Davis & Co. of 69 New Jersey Railroad avenue, Newark, N. J.

The lathe is generally driven by power, but it can be run also by hand by means of a crank or lever. It has a counter-shaft overhead and is reversible. Conical centers are placed on the center-shaft to hold the roll on which the transfer is to be made. These centers are movable to suit rolls of different lengths, which are placed on and are taken off by raising one end of the shaft. Attached to the end of this shaft there is an index wheel, which is used to lay out the work accurately, and with the aid of a full set of cut gearing, which is furnished with the lathe, the operator is enabled to move the rest at any given pitch. The steel roll on which the design is engraved is placed in steel journals ground perfectly true and fitted in the head of the rest. It is then brought to bear upon the copper, iron or steel roll which has been placed upon the center-shaft, the lathe is put in motion and the design required on the roll is thus transferred from one to the other. The pressure required to make the indentation on the roll is regulated by a weight placed in the hook on the bar attached to the rest, as seen in our illustration. The lathe is furnished with composition boxes, and the small parts, together with the shafts, are made of steel. As the workmanship must be very accurate, all the parts are made to a gauge, so that there may be no lost motion or jar, the slightest defect being sufficient to destroy the impression made while transferring the design from the small steel roll to the roll which is used to do the printing or embossing.

The Sweetland-Horton Chuck.

With a view to giving the Horton chuck an independent as well as a universal action, the E. Horton & Son Company, of Windsor Locks, Conn., have modified it so as to include Sweetland's improvements, the construction of which will be understood by referring to the accompanying illustrations. Figs. 1 and 2 give a front and back view of the chuck, which it will be seen is composed of a front and back plate, firmly bolted together. The jaws, which are an improved construction, as shown in Fig. 3, are moved to and from the center by the following mechanism: A circular rack, Figs. 4 and 5, which revolves in a deep recess, B, of the back plate, Fig. 6, has a continuous bevel cut into it on its back, while gearing is cut into the other side. The recess in which it revolves is made deep enough to allow the rack to disengage from the pinion gears on screws; in this recess, and back of the circular rack, lie the cam blocks C, beveled A, to correspond with the bevel in the rack. These bevel cam blocks have radial motion in the recess of the back plate, and when in position, being moved to the outer portion of the recess and rack, they engage the circular rack into gear with the screw pinions, and when they are moved inward allow the rack to disengage from the pinions. The former adjustment gives the universal action, and the latter the independent. The back plate is also provided with radial mortises or slots, and the cam blocks C C, Figs. 7 and 8, are furnished on the back with posts which run through and have play in these mortises. The ends of these posts are threaded, and take upon them nuts, underlaid with the convex spring washers F F, which prevent the cam blocks from accidentally moving; also, form a covering for the slots, and prevent dirt or chips entering the gearing. The operator adjusts the cam blocks by taking hold of the nuts. The jaws of the chuck, which are ground true after being case-hardened, may be removed without taking the chuck out of the lathe. The line D, Figs. 1 and 3, serves to indicate the true position of the jaws when the chuck is to be used as a universal one. Its design is simple and compact, and its construction such as to ensure ease of operation and durability.

The opening of the National Fair at Washington on the 28th ult. was marked by a partial suspension of public and private business, and about 15,000 people flocked to the fair grounds. An industrial procession four miles in length was formed, and, proceeding through the principal streets, reached the grounds about noon. The Presidential party, including Secretaries Evarts and Schurz, Postmaster-General Key, Attorney-General Devens, and Gen. Sherman, with ladies, arrived at the grounds about 1 o'clock, where they were received by the directors. They were then escorted to the main building, where Mr. William M. Galt, President of the Fair Association, delivered an address of welcome, to which the President briefly responded, complimenting the managers of the fair on their enterprise and energy. The races announced for the day were then run.

METALLURGICAL NOTES.

THE PIG AND ORE PROCESS FOR MILD STEEL.

M. Pourcel, in reply to the criticisms of his remarks on the Siemens or pig and ore process, has given his experience with that process when used for making mild steel. He says in a communication addressed to our English contemporaries: In the manufacture of soft metal, when the carbon goes

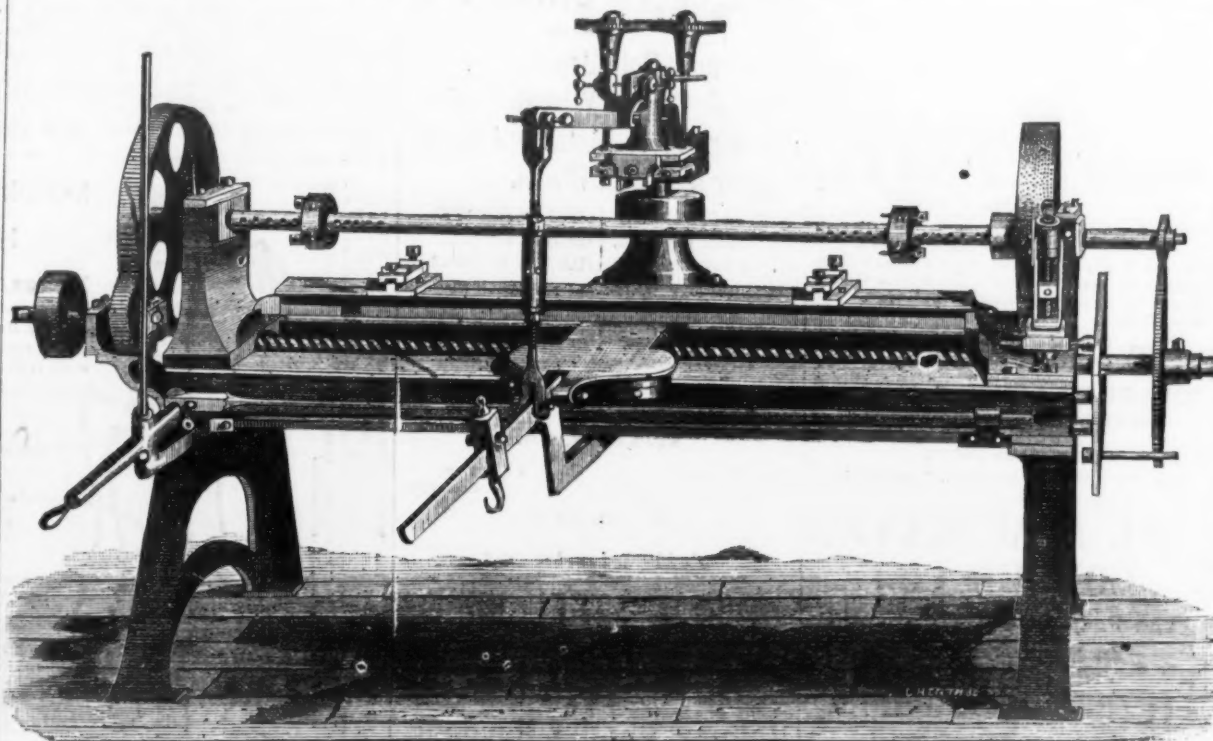
which contains no more than .12 to .15 of carbon and .15 to .20 per cent. of manganese. To manufacture such metal in a regular and economical manner by means of the pig and ore process, pure and simple, is a problem which I do not feel myself capable of solving. My experience is, that the scrap process permits of our judging almost exactly the weight of metal contained in the furnace at the moment the ferromanganese

Will it be practicable to effect the intimate mixing of the metal and reagents, even in a furnace with movable hearth, to the same extent as in the Bessemer converter? The phosphorus has been eliminated in Ponsard's Furno-Convertisseur, says Mr. Thomas. Of that I am aware, but I have also been informed that the metal could not be run into ingots for want of heat, and because it had arrived at the pasty state. The dephos-

cheap metals for mill plates; but copper has many and serious objections, and in the long run cannot be considered nearly as cheap as if it were at first heavily plated with silver or even gold itself, which is admitted by all to be the best agent for bringing quicksilver in contact with fine particles of gold in pulp. It is noticed in mill mortars crushing gold ores, that wherever a little stray amalgam finds lodgment it rapidly increases in quantity. As soon as a copper plate is coated with quicksilver, the quicksilver begins to eat into or dissolve the copper, and the particles thus liberated float to the surface, where, coming in contact with air or other salifying agents, produce that extremely annoying film known as "verdigris," and so prevent the contact of gold and quicksilver necessary to amalgamation. This action or solution, though extremely slow, is sure and certain, and continues as long as the two metals are exposed to direct contact. The coating of mercury on a copper plate, though usually very thin, always has an appreciable depth, sufficient at any rate to permit of the movement and arrangement by gravity of particles held in suspension therein, and as the copper is slowly dissolved away the place of its atoms is immediately filled with others of denser gold amalgam, and the form of the plate is thus preserved, though in substance it is gradually changing from copper to gold amalgam. This process is, of course, more rapid in the beginning, when the mercury has free access to the copper, than it is later on after more or less gold has intervened between the two metals, and it gradually diminishes until the verdigris or oxide of copper only rises in such small quantities that it is ground off by the action of the running pulp on plates in active use as fast as it forms, and not until plates reach this condition are they presumed to be in good shape for gold saving. Now a plate that is sending up verdigris, even in the smallest quantities, is not as good as one that does not, and therefore a copper plate never does become the equal of a gold one, and is never considered in prime condition until it has actually accumulated and secreted more than enough gold to form a plating sufficiently heavy to insure insulation of the quicksilver from the copper, even in case of the rather severe scraping with steel tools to which it may be subjected. It cannot be doubted that the gold so accumulated could be much better applied as a plating, for it would then present a smooth, solid and even surface, and practically invulnerable to the inroads of the quicksilver, whereas by the present method it is slowly deposited as a hard amalgam, which eventually renders the plates so brittle that they become fit only for the fire.

THE INFLUENCE OF SILICON ON THE REFINING OF STEEL.

An interesting experiment, which shows the effect of silicon in preventing the reduction of phosphorus in acid in the cinder of an open-hearth furnace, is given by M. A. Pourcel, of Terrenoire. A 3 ton charge, containing 250 per cent. of carbon and 0.50 per cent. of phosphorus was melted in an open-hearth furnace. The slag which covered the metal was removed, and the surface of the bath laid bare. The gas was then shut off, and the hot air alone allowed to pass through the furnace. At the end of 15 minutes a black slag had formed on the surface of the bath, and during its formation jets of carbonic oxide gas were constantly rising from the metal. This fact should be noticed. Samples of metal and slag were then taken, and the gas again let on to reheat the bath. The phosphorus was estimated in the metal and slag, and the percentage in the former was found constant, viz., 50 per cent., the slag showing no traces of this element. When the bath had been reheated the slag was again removed, the gas shut off, and a second refining effected, as before, but, instead of allowing carbonic oxide to form, an addition was made of a certain quantity of silicide of iron manganese, containing 20 per cent. manganese and 10 per cent. silicon, which completely prevented the disengagement of carbonic oxide gas. After a quarter of an hour the jets of carbonic oxide again appeared, and a sample of the metal was taken before the gas was turned on, and the slag formed during the passage of the air only was removed. The metal now yielded, on analysis, only 0.35 per cent. of phosphorus, and a very appreciable amount was found in the slag, although it was not estimated quantitatively. The experiment was repeated, but instead of taking samples immediately on the reappearance of the jets of carbonic oxide after the action of the silicide, and instead of clearing away the slag formed during this period, which slag contained the phosphorus that had been scorified, samples were not taken until 15 minutes after the gas was turned on and boiling of the bath had recommenced. It was now found that the phosphorus had disappeared entirely from the slag, and had been reabsorbed by the metal, which yielded, on analysis, its original content, viz., 0.50 per cent. Thus, under the oxidizing action of a current of hot air, phosphide of iron is scorified, when the reducing action of carbonic oxide is obviated by the addition of a metallic silicide to the bath. By making three successive calcinations, each of from 10 to 20 minutes' duration, and under the above-mentioned conditions, M. Pourcel succeeded in reducing the phosphorus from 0.5 per cent. to 0.24 per cent.



THE DAVIS TRANSFER LATHE.

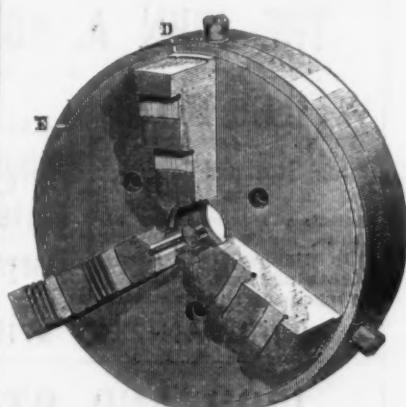


Fig. 1.—Front View.

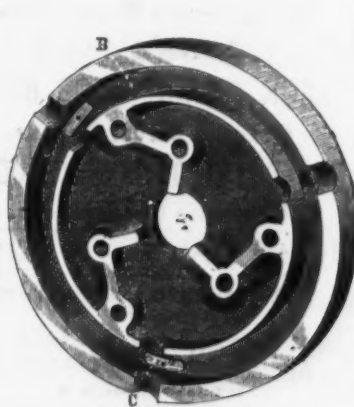


Fig. 6.—Back Plate.

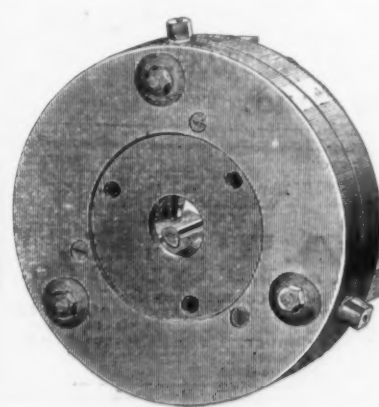


Fig. 2.—Back View.

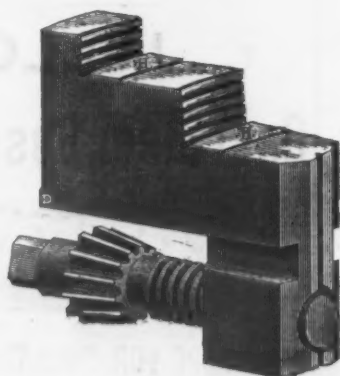


Fig. 3.—Jaw.



Figs. 7 and 8.—Cam Block and Washer.



Figs. 4 and 5.—Circular Rack.

THE SWEETLAND-HORTON CHUCK.

deoxidize the metal by means of manganese, the quantity of ferromanganese added must be considerable, and we find ourselves facing two alternatives; either we get a very soft, but red-short metal, which boils in the ingot molds and overflows, or a metal which works well hot, but is far from possessing the necessary degree of softness demanded in France for ship-plates, which contain only .16 to .18 of carbon, with .2 to .25 per cent. of manganese. I do not speak of boiler plate metal, still more difficult to make, and

in view, in which the carbon averages from .12 to .18, and the manganese .15 to .25 per cent. It is a metal similarly decarburized that is obtained in the Thomas-Gilchrist process, and always what it would be necessary to obtain in the Siemens furnace, by means of the pig and ore process, pure and simple, without any addition of scrap, and not a metal with .3 or .4 of carbon, which is now considered soft enough, provided the phosphorus does not exceed .10 to .12 per cent. Can the phosphorus be reduced to this limit?

cisco, is doing good work in this direction, and the following, taken from a recent issue, will be read with profit: In selecting a suitable metal for amalgamating plates, the most important point to be taken into consideration is its action with quicksilver. All the base metals to which quicksilver adheres at all are more or less soluble in that substance, and in proportion to their solubility are they unfitted for the purpose. For this reason copper has been settled upon as being the least soluble of all the available

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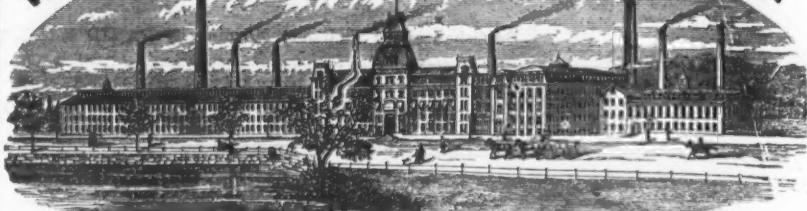
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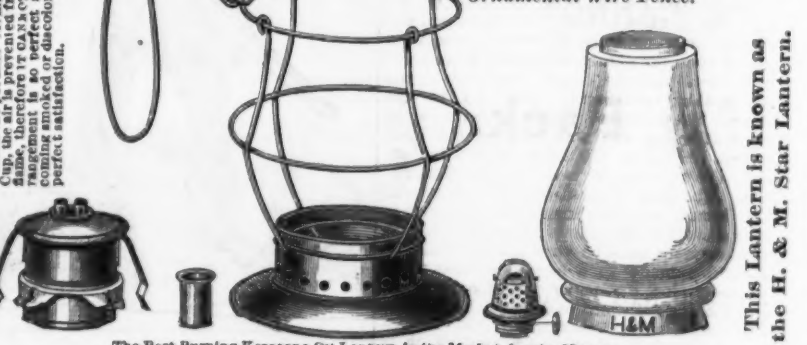
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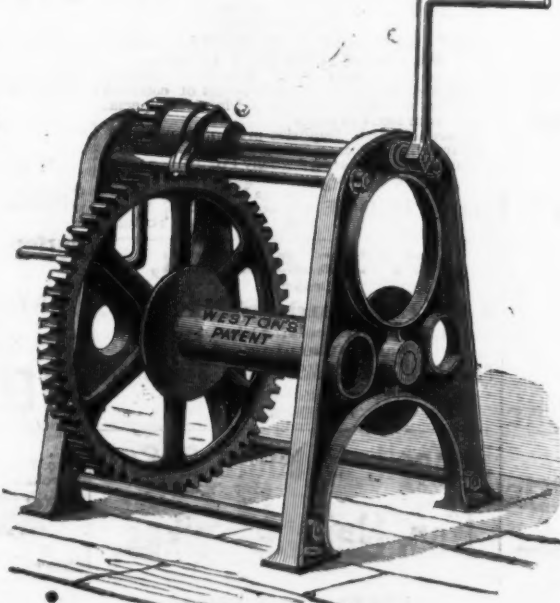
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In preceding issues of the *Iron Age*, we published together those communications which related directly and indirectly to the manufacture of steel proper. Another class of papers was that bearing upon the uses of iron and steel and some of its properties. Although hardly of any strictly practical importance, the following paper by Mr. J. A. Picton, F. S. A., of Liverpool, will be read with interest.

ON THE PROGRESS OF IRON AND STEEL AS CONSTRUCTIVE MATERIALS.

The object of this paper is shortly to illustrate the development and progress of iron and steel as constructive materials. A rapid glance at their history to the present time may aid us in indicating the lines along which their utilization in future is likely to be carried.

The earliest mention of iron is found in the Book of Genesis, chap. iv., 22, where we are told that Tubal Cain was "an instructor of every artificer in brass (or bronze) and iron." The Hebrew word is *barzel*, from a root signifying hardness and strength. We read also of the iron bedstead of Og, king of Bashan, and of Sisea's 900 chariots of iron, 1300 years before our era. In the time of Agamemnon iron was not in general use. No implements or weapons of this metal have been found in the remains of Mycenae or of Troy. A large iron plate, however, has been discovered in one of the Egyptian pyramids. In the time of Homer iron was a rare and costly commodity, more highly prized than gold. The poet never mentions it as the material of armor or weapons, which were entirely of bronze, but in two passages in the *Iliad* iron axes are mentioned as valuable prizes in the athletic games.

Iron was not employed for weapons by the Romans before the time of Hannibal in the second Punic war, but once adopted, the practical genius of the Roman people perceived its advantages, and entered upon its manufacture with avidity. It is not probable that either the Greeks or Asiatics knew the process of extracting iron from the ore. Both iron and steel are found occasionally in a native condition, principally of meteoric origin. Hence it is supposed originated the Greek name for iron, from the same root as *sidus*, the Latin for the starry heavens. The Romans in Britain practiced the art of extracting the metal from the ore on a large scale. Their works were principally carried on in what is now the Forest of Dean in Gloucestershire, and that of Anderida in Sussex, in both of which enormous quantities of scoriae and cinders have been found. With imperfect methods they were unable to fuse the ore so as to produce cast iron, and it is probable that the metal was refined by several processes before it was finally adapted for use. The mines had been previously worked, for Cæsar on his arrival found the Britons in possession of iron, though it was employed more for ornament than use.

This imperfect method continued down to the sixteenth century, when the introduction of the blast furnace led to the production of cast iron, the manufacture of which was for a long time principally supplied from the scoriae and cinder heaps left by the Romans.

Once adopted, the superiority of iron over every other metal for tools and implements led to the supersession of all other materials for that purpose, and the use of iron entered upon a progressive career, which has extended with the advance of society in an ever-increasing ratio. One of the first purposes to which iron was applied was that of weapons and armor, the manufacture of which attained in the Middle Ages a very high degree of excellence; the hauberks of chain mail of the most intricate and delicate patterns, the chased and inlaid suits of armor, constantly changing its form, exercised the ingenuity of the armorers, and exhibit in the remains left to us a large amount of ingenuity and artistic skill. Offensive weapons were equally elaborated. The Toledo rapier and the Damascus scimitar had a world-wide reputation, and even in England the Sheffield *thwistle* in the time of Chaucer had become famous for its quality. Ironwork at this period was of the most elaborate description. The locks and keys, the hinges and bolts, the smith's work in gates and screens, exceed in beauty anything of the kind which has since been produced. Many specimens remain both in England and on the Continent, among which may be mentioned the ironwork in the church at St. Gudule at Brussels, the well cover by Quentin Mastys at Antwerp, and, though of a much later date, the beautiful park gates at Hampton Court. The introduction of cast iron into general use in the seventeenth century effected a considerable change in the application of the metal.

Its cheapness led to its extended use in the household economy of daily life: fire grates, stoves, pots and pans, gates, palisades, pipes, &c. This was no doubt in many respects a great advantage, but it had a very injurious effect on the art of the smith, superseding skill and ingenuity by the deadening process of routine in cast work, and substituting cheapness for excellence.

From the seventeenth century onward the use of iron in works of magnitude became much more general. Wrought iron having to be worked by hand, was necessarily limited in the size and weight of its productions, but cast iron was capable of applications of a more extended character. In 1755 Smeaton first used large pieces of cast iron for mill and engine work. From that period a leading part has been taken in this country in the development of constructions in iron. It has been well said that the triumphs of iron are principally due to Englishmen; they were the inventors of the steam engine, the railway, the locomotive, iron ships, steamboats, the steam hammer, the telegraph wire, the cast and wrought iron bridges, the ironclads, the monster guns, iron roofs, iron tunnels. One of the first employments of iron on a large scale was in the construction of bridges. In the sixteenth century a proposition was made by Italian engineers to construct a bridge in cast iron, but the scheme proved abortive. In 1755 an iron bridge was projected at Lyons, to consist of three arches of 82 feet

span. Part of the work was actually prepared and put together in the builder's yard, but from some cause not recorded this attempt was also abandoned, and a timber bridge substituted. In 1777 the first iron bridge in England was designed by Mr. Thomas Pritchard, an architect of Shrewsbury, was constructed by Mr. Abraham Darby, of Coalbrookdale, and erected over the Severn at Broseley in 1779. The span is 100 feet, the arch nearly semicircular. Soon after this date the idea of constructing bridges in wrought iron occurred to several French engineers, and several designs were prepared for works at Paris and elsewhere, but they were not carried out. In 1795 another cast iron bridge was constructed over the Severn at Buildwas, by Thomas Telford, 130 feet span. The boldest conception, however, was the cast-iron bridge over the Wear, connecting Monkwearmouth with Sunderland, which was designed by the celebrated Thomas Paine, and was opened in 1796. It consists of a single arch 236 feet span, with a versed sine of 34 feet. For grandeur of idea, lightness of effect, and economy of material, it has never been surpassed. From that period to the present the construction of iron bridges has proceeded in an ever-increasing ratio, until they have come, in works of magnitude, almost entirely to supersede stone. For some years cast-iron bridges had all the sway, constructed either with voussoirs or arch ribs, but have more recently been almost entirely abandoned for structures in wrought iron.

Then followed the suspension bridge, of which probably the most graceful specimen is Telford's beautiful structure over the Menai Strait. This was originally designed in 1814 to span the river Mersey at Runcorn, on the site now occupied by the railway bridge; but the means were not forthcoming, and the project slept until revived in 1819 for the new site, and was completed in 1825.

The rapid development of the railway system from its initiation by George Stephenson in 1825, has called out all the resources of the engineering mind, and led to bridges and viaducts of great boldness and skill. One of the most celebrated of these is the tubular bridge over the Menai, having two spans of 460 feet and two of 230 feet each. A vast amount of experiment, calculation, and research was expended on this design, which no doubt answers its purpose, but with an expenditure of material and an unsightliness of effect which seems to have deterred others from following in its wake. The lattice railway bridge over the Mersey at Runcorn, designed by the late Mr. Baker for the London and Northwestern line, is a fine specimen of economy of material and efficiency in the result. Specimens of railway bridges abound on every side, and have developed the capabilities of iron to a wonderful extent. The two largest are probably the viaduct over the St. Lawrence, which consists of 24 spans of 242 feet each, and the more recent one over the Tay at Dundee. The latter is the most remarkable specimen of iron bridge building which has yet been constructed. It is two miles in length, consisting of 85 spans of various dimensions, 11 being 245 feet between the supports. The construction comprises plate, bowstring and lattice girders in wrought iron, with cast-iron columns and piers in combination with brickwork and masonry. These are, however, to be surpassed in boldness of design by that projected over the Firth of Forth, the designs for which are not yet published.

One of the first to introduce iron into shipbuilding was Mr. Fairbairn, of Manchester, who in 1830 built three iron steam vessels for the Forth and Clyde Canal Company, and subsequently many others for use at home and abroad. The first sea-going iron ship was the *Richard Cobden*, built in 1844 at Liverpool by James Hodgson & Co.; she was 136 feet in length and 522 tons burden, builder's measurement. Some years elapsed before the example was followed to any extent, when by a sudden impulse, and with common consent, timber was abandoned and iron became the order of the day. With the facilities afforded by iron enormous progress has been made in naval architecture. The *Great Eastern* steamship was built in 1858 on the Thames. Her dimensions are 679 feet 6 inches in length, 82 feet 8 inches beam, and 48 feet in depth, fitted with screw engines of 1600 horse power, and paddle engines of 1000. Probably she was in advance of her time, the skill in her arrangements not being equal to the grandeur of the conception, but the tendency of late years has been to increase the dimensions, particularly in length. The latest development has been shown in the *Arizona* of Liverpool, of the Guion Line, and the *Orient* of London, of the Australian Line, both recently built on the Clyde, of dimensions nearly alike. The *City* of Berlin, and the *Inman* Line, and the *Britannic* and *Germanic*, of the White Star Line, are little, if at all, inferior in size. The *Orient* has a registered tonnage of 5400 tons, with a displacement of 9500. Her length is 445 feet 6 inches, 46 feet 6 inches beam, depth, 35 feet. It will be observed that while the length of the *Great Eastern* is about eight times her breadth of beam, the length of the *Orient* is nearly ten times her width.

The application of iron to ships of war has probably exceeded the progress in any other department, if we consider the enormous masses of iron employed, and the crucial experiments to which they are subjected. A modern turreted ironclad, with her 10 or 12-inch coating of solid metal, her engines of many thousand horse power, her almost automatic machinery for performing every naval operation, her capacity for destruction in the immense armament she carries, presents a representation of the state of modern society, both in its scientific and social aspects, perhaps as striking and illustrative as can be anywhere found. Closely connected with this is the application of iron to the purposes of war, whether by land or sea. Within the last few years the contest between the aggressive power of ordnance on the one hand, and the defensive power of iron plating on the other, has been carried to an almost inconceivable extent. The caliber of the gun is increased to pierce the plating, and the thickness of the plat-

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ing is increased to resist the impact, so
that we have arrived at guns of 100 tons
and upward, with projectiles of nearly 1000
lbs. weight, resisted by armor plates 10 to 12
inches thick. At what point the contest is
to end no man can foresee. Iron, also, is being
largely utilized for defensive purposes by
land. At the present time the new fort now
in construction for the defense of the river
Mersey is to have wrought-iron plates for
the protection of the gunners, some of
which are 20 feet long by 11 feet in height
and 8 inches in thickness, weighing 26 tons
each.

The subject is so vast, that I might go on
enumerating to an almost boundless extent
the various uses and applications of iron,
which are constantly increasing in their
adaptation to every purpose of human so-
ciety, but time will not permit. I will only
notice the progress of iron in another de-
partment, that of building construction.
The old materials for building were stone,
brick and timber, and with these, especially
the first, some of the noblest monuments of
art and skill have been constructed. Iron,
in ancient times, played a very subordinate
part in building. It is only in modern struc-
tures that its advantages have been appre-
ciated. At first cast iron was employed for
columns and struts supporting weight, and
subsequently for girders and beams, but the
treacherous nature of the material when
subjected to cross strain rendered its use very
hazardous. By degrees wrought iron, by
means of improved machinery for rolling,
was rendered adaptable for building purposes.
A great impulse was given to its employment
by the construction of the Crystal Palace, in
Hyde Park, in 1851, in which, for almost the
first time, the design was adapted to the na-
ture of the new material. This led the way
to further improvements. Rolling mills
were constructed to manufacture girders
and joists of lengths and sections not pre-
viously attempted, and the result has been
the employment of wrought iron to a very
large extent in roofs and floors. Concur-
rently with this progressive movement, the
demand for roofs of very large span in rail-
way stations has stimulated design, and led
to the construction of iron roofs of a mag-
nitude never before contemplated; the width
of span in several cases approaching 300
feet, and the large areas covered, as in the
stations of St. Pancras, at Birmingham, and
at Lime street, Liverpool, are such as cast
into the shade all former constructions of a
like kind.

Iron floors have not in England been
adopted to any very large extent, but in
France, especially in the new quarters of
Paris, they are almost universal. The gir-
ders and joists are of rolled iron, with iron
laths dropped in between, on which is
spread a coating of concrete, rendering the
structure perfectly fire-proof. Iron lends
itself readily to the construction of dome
roofs, of which recent specimens are found
in the reading room of the British Museum,
and in the one recently erected in connec-
tion with the Free Public Library, Liver-
pool.

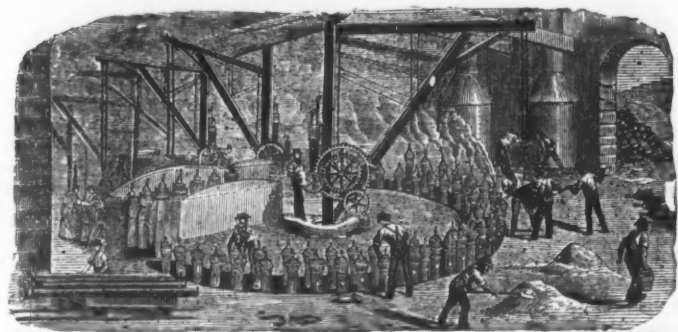
I have endeavored in the above remarks
to give a rapid sketch of the lines along
which the progress of iron construction has
been advancing. I will conclude with a few
words on the direction in which these lines
are leading us.

Notwithstanding the enormous develop-
ment of railways both at home and abroad,
and the depression consequent on excessive
and imprudent expenditure, there can be no
doubt that the railway system has still a
great future in store. There yet remains
much land to be possessed. European en-
terprise will never cease until all the lines
of intercourse where commerce finds its
way are provided with railways. The
adoption of steel for rails, thanks to
the genius and enterprise of Sir H.
Bessemer, Dr. Siemens and others, has
much facilitated these operations, and holds
out to the British manufacturers the prospect
of a profitable employment of their
capital. Machinery, whether locomotive or
manufacturing, is undergoing a constant
but quiet revolution, consisting in improved
economy of materials, rapidity of motion
and increased efficiency. Iron ships, es-
pecially steamships, are increasing in size
and power, to which the introduction of
steel plates will impart greatly increased
advantages. In warlike affairs, whether
the contest between armor plating and
armor piercing has reached its acme, I will
not take upon myself to say. The final de-
cision of the problem is one of great interest
as to the future employment of iron for such
purposes.

The facilities of iron, especially wrought
iron, for all engineering constructions are
more and more appreciated year by year,
but with some few exceptions there is a
great defect runs through them all in the
absence of anything of aesthetic taste in the
designs. The ancient motto for build-
ing was "Strength, commodity, beauty."
The first two have been attended to almost
to the entire neglect of the third. This I
cannot help thinking is a great mistake.
The grand engineering works with which
the surface of our country is studded should
have a dignified and noble aspect. They
should minister to the sense of beauty and
fitness as well as to that of strength and
power; but too frequently the reverse is the
case. I will refer to an instance or two.
The railway viaducts built by Brunel over
the rivers at Chepstow and Saltash are
grand specimens of constructive skill, but
their aspect is repulsive in the extreme.
Let any one compare London Bridge, with
the graceful curves of its arches and its sim-
ple, yet elegant, design, with the iron bridge
of Blackfriars, or, still worse, with the rail-
way bridges crossing the Thames; the con-
trast will be found painful in the extreme.
The railway bridge at Runcorn, by Mr. Baker,
with its light iron latticework and the
sweeping lines of the viaducts on each side,
is a fine and noble structure. Telford's sus-
pension bridges at Conway and the Menai
are charming in their outline and fairy-
like in their construction, while their
neighbors, the tubular bridges, are the
very incarnation of ugliness. This is a
defect not inherent in the material, for iron
readily lends itself to any shape of beauty.
It rather arises from contempt or inadver-
tence, looking at strength and power as
the only elements required. Let us hope

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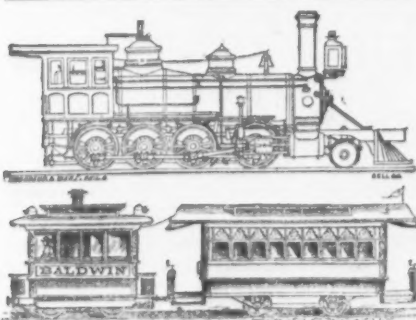
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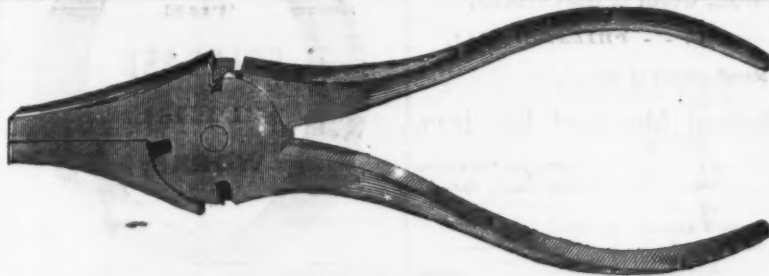
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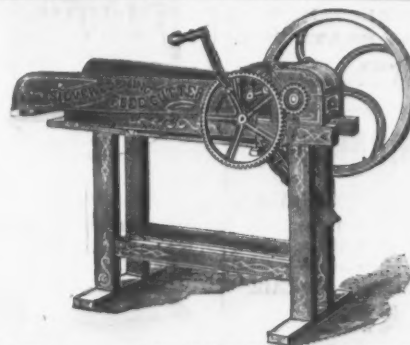
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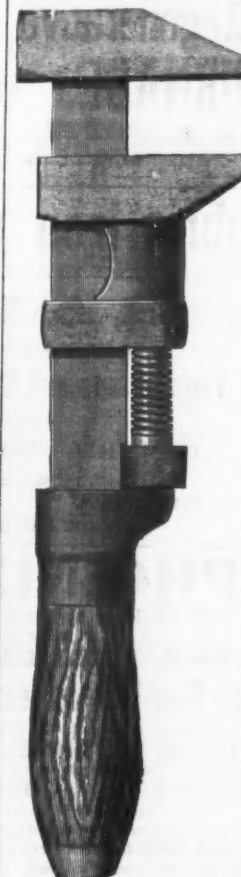
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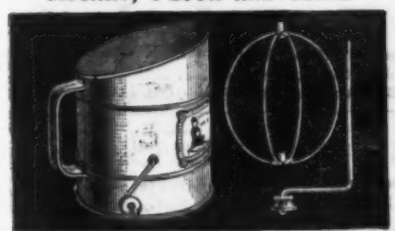
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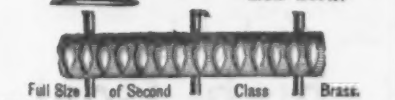
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Manufacturers of all styles Plain and Ornamental Butts,

LOOSE PIN REVERSIBLE, Cast Fast & Loose,

Drilled and Wire Jointed,
Japanned, Figured, Enamelled, Nickel Plated
and Real Bronze Butts. Also a full line of
IRON & BRASS PUMPS.

Cistern, Well and Force Pumps, Yard Drive Well,
Garden Engine and Steam Boiler Pumps, Hydraulic
Rams, etc., and all with the most modern improvements.

Union Spiral Spring Hinges.

We beg to call the attention of Architects, Builders,
Dealers, and all interested parties, to our Spiral
Spring Hinge, knowing it to be an effective and dura-
ble one, neat in appearance, easy to put on, and not
liable to get out of order. The springs are made from
wire made expressly for us, and for this particular
purpose, with the view of great elasticity, durability
and power. They produce a continuous pressure
from the point where the door is wide open until it is
closed, and then hold it perfectly in position. It has
a solid pintal in connection with short hollow ones,
causing little or no friction, the whole power of the
spring being exerted in swinging the door. It is fast
joint, and can be used for either right or left hand,
allowing the dealer to carry less stock, and the builder
will never get the wrong hand.

127 Fine Castings a Specialty.
NEW BRITAIN, CONN.

Warehouses:
98 Chambers St., New York.
67 Kilby St., Boston (Pumps).
Heaton & Decker, 507 Com-
merce St., Phila. (Butts).
Send for Illustrated Catalogue and
Price List.

Single Action. Double Action.

BURRALL'S PATENT

CORN SHELTER AND SEPARATOR.

Right-Handed.



It is best and cheapest.
It is a right-handed Sheller.
It is all iron and very durable.

It shells and separates perfectly clean.
It will shell either large or small corn.
It has no outside gears and will not clog.

We manufacture the only genuine Burrall Corn Sheller, having been making
them for the past 15 years. It is therefore of very great importance that you should
purchase shellers with our name on to avoid trouble in getting repairs. We can pack
from six to eight in a hoghead. For prices or other information, address

THE GOULDS MANUFACTURING CO.,

FACTORY: Seneca Falls, N. Y. WAREHOUSE: 15 Park Place, New York City
H. W. AUSTIN & CO., Agents, Chicago, Ill.; BIGNALL & OSTRANDER, Agents, St. Louis, Mo.

CUT TACKS, SHOE NAILS, WIRE NAILS, Pat. Brads, Finishing Nails, Clout Nails, Trunk Nails, Hungarian Nails, Cigar-Box Nails, Basket Nails, 2d and 3d Fine Nails, Carpet Tacks, Upholsterers' Tacks, Gimp and Lace Tacks, Brush Tacks, Copper and Brass Tacks, BRASS AND IRON ESCUTCHEON PINS, &c., &c., MANUFACTURED BY DUNBAR, HOBART & WHIDDEN, So. Abington Station, Mass. New York Salesroom, 39 Warren St. Goods made to order from sample. Particular attention given to orders for EXPORT.

that a better spirit may be evoked, and that
our future engineering works in iron may be
as distinguished for beauty of design as they
are now renowned for grandeur and effi-
ciency.

In architecture properly so called, iron is
doubtless destined to play a very important
part. Hitherto architects, as a body, have
neglected iron. When employed, they have
striven to hide it from sight, and seem to
apologize to themselves and the world for
being obliged to use it instead of brick or
stone. Its use, however, is being forced
upon us, and on every side we are met with
iron sheds, iron churches, iron houses. The
designs of these are usually hideous to be-
hold, but why should this be so? Why
should architects not face the difficulty,
and, instead of letting iron master them,
convert it into their handmaid and servant?
The medievalists followed a different course.
They took the material which lay before
them, and, by a happy audacity in design
and skill in construction, they produced
effects which, for composition of masses,
picturesqueness of outline, and brilliance of
inventiveness, have ever since been the ad-
miration of the world.

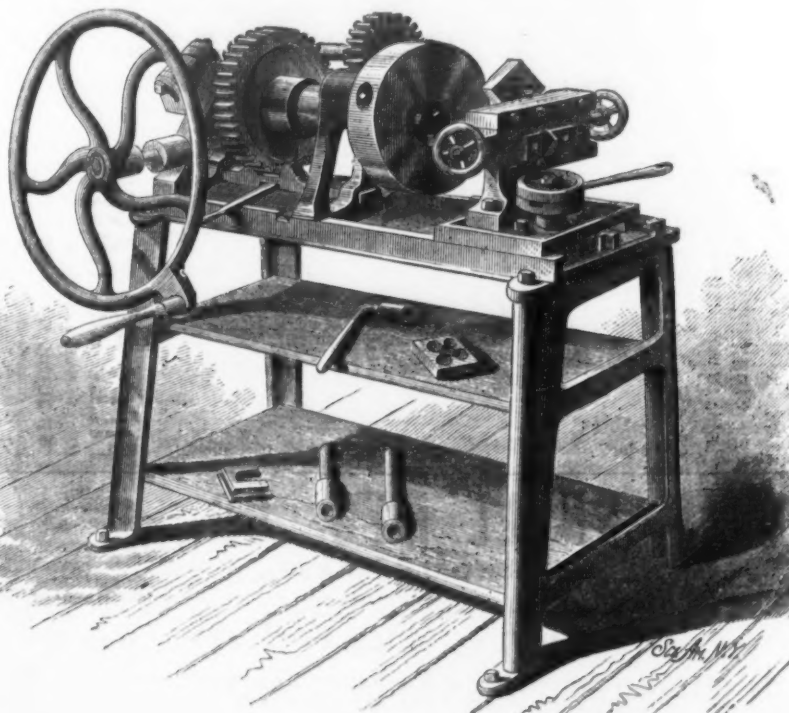
In a manner quite similar to the "discus-
sion" following M. Fourcel's paper, Mr.
Picton's communication was the innocent
cause of much debating on the advisability

cal direction, thereby compensating for the
sag usually incident to doors just hung.

This bolt is designed for use upon either
inside or outside doors. Hobart B. Ives, of
Fairhaven, Conn., is the patentee and manu-
facturer, by whom the trade is supplied.
The article is sold by hardware dealers gen-
erally.

The "I X L" Pipe Cutting and Thread- ing Machine.

Our illustration represents Messrs. D.
Saunders' Son's, Yonkers, N. Y., new pipe-
cutting and threading machine, called the
I X L. It has three changes of speed, which
are made by the movement of a lever shown
at the front of the machine. The slow speed
is used on work from 1 1/2 up to 2 inches.
The fast speed cuts 1/4, 3/8 and 1/2 inch. The
patent center gripping check is substantially
constructed, and has three jaws moved to-
gether by a single screw, and centers the
pipe truly. Guides are not used at the back
of the machine, a novel chuck taking their
place. The die head is arranged with self-
centering jaws for steadying the pipe while
it is being cut off by the cutting-off tool,
which is carried by a slide. The danger of
cutting crooked threads is met by making
the pipe, instead of the dies, revolve. There



I X L PIPE CUTTING AND THREADING MACHINE.

of reducing the tests required for steel for
shipbuilding chiefly. The severity of the
present tests excludes any but very mild,
high grade steel, the price of which is such
that it places steel at a disadvantage with
iron for ship plates.

are no loose guides to be changed or lost.
The manufacturers claim that by the use of
these machines work can be accomplished
in about one-third of the time which would
be necessary to do it by hand, which would
make a very great saving in case of a large
job. It is said that even 1/4 and 1/2 threads
can be cut more quickly by the machine
than by hand tools. These machines are ar-
ranged to be driven by both hand and
power. The machine is very handy for
cutting off round iron and steel, especially
in jobbing shops; in such cases it can be
fitted with attachments by which it is
converted into a nut tapping and bolt
threading machine, for which purpose it
is very well adapted. Taken altogether the
tool seems to be a valuable one.

Burglar Proof Door Bolt.

We illustrate herewith what is known as
Ives' Patent Burglar Proof Door Bolt.
Fig. 1 shows the general appearance of the
article, while Fig. 2 shows the internal con-
struction. By inspection of the engravings
it will be seen that its parts are very few
and the construction exceedingly simple.
Its application to the door is by means of a
round hole bored for the purpose. The
striking plate is inserted into the jamb or
casing in the same manner.

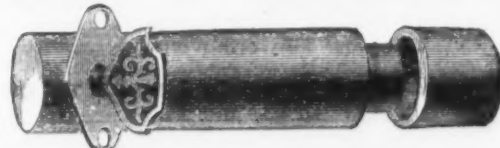


Fig. 1.—IVES' PATENT BOLT.—OUTSIDE.

The bolt proper is operated by means of a
knob, attached to a square spindle shank,
the latter fitting into a suitable seat attached
to the bolt by a pitman. Movement is com-
municated to the bolt after the manner of a
crank by simply turning the knob. To
temporarily lock the bolt in either of its two
positions, the pitman is constructed and ar-
ranged to operate in the manner of a lever
spring.

The knob is provided with a suitable es-
cutcheon, which is shown in the engraving

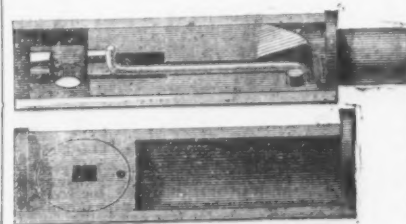


Fig. 2.—INTERNAL CONSTRUCTION.

(Fig. 1), by which also it is held in place
against the face of the door, and the spindle
in turn, to which the knob is attached,
serves to hold the bolt in place in the door.
A 13-16-inch bit is required for the hole in
the edge of the door to receive the bolt,
and a 3/4-inch bit is used for the knob or
thumb key. A 13-16-inch bit is also used
for the striking plate, the latter being made
large enough to admit of driving into posi-
tion to insure a close fit. There is no other
cutting or fitting required. Two small
screws fasten the escutcheon in place. The
hole in the striking plate to receive the end
of the bolt is somewhat elongated in a verti-

miles from Pittsburgh. The city lies on
both sides of the river, but the finest build-
ings and the business portion of the place is
on a narrow bottom on the north side of the
river and at the foot of a steep bluff, on
which are built the residences of the
wealthy citizens. The stores on the bottom
land are situated on two long streets—Rail-
road street and River avenue. Most of the
buildings had all the characteristics of a fast
oil town. They were built generally of
wood, but were handsomely finished, and the
shop fronts were generally covered with
plate glass. Parker is next to Oil City in
importance as an oil market in that region.
The fire broke out about 3 o'clock on the
morning of the 30th ult., and as the wind
was blowing briskly the flames soon spread.
The people seemed to lose all common sense,
and for some time even the limited fire
apparatus at their command was not used
as effectively as it should have been. The
flames spread so rapidly that a panic took
place. The fire was under control by about
9 o'clock, although frequent alarms were
given of a fresh outbreak during the day.
The fire is thought to have been of incoor-
dinate origin. Nearly all the lots in the
burned district belong to the Parker estate,
and, as a high ground rent is charged for
them, it is not probable that many of the
burned structures will be rebuilt. The loss
is about \$300,000 or \$350,000.

Arrangements have been concluded be-
tween the Orient Steam Navigation Com-
pany and the Pacific Steam Navigation
Company, of Liverpool, under which the
two companies will run steamers fortnightly
between London and Australia direct, com-
mencing in January next. Hitherto the
steamers of the Orient line have sailed at
intervals of four weeks.

A. FIELD & SONS,

TAUNTON, MASS.,

MANUFACTURERS OF

AMERICAN AND FRENCH WIRE NAILS, TACKS, SHOE NAILS, And Every Variety of Small Nails.

Offices & Factories at Taunton, Mass.

Warehouse at 78 Chambers St., New York,

where may be found a full assortment of Tacks, Brads, Wire Nails, &c., for the accommodation of the New York Wholesale and Jobbing Trade.

Any variations from the regular size or shape of the above-named goods made from sample to order.

A SILVER MEDAL has been awarded above goods at the Paris Exposition, being the only medal awarded any American manufacturer of Tacks and Wire Nails.

Hoisting Machinery
MANUFACTURED BY
CRANE BROTHERS MFG. CO.,
Chicago.

STAR LOCK WORKS.
ESTABLISHED 1836.

Trunk Locks, Door Springs,
Pad Locks, Trunk Stays,
Dead Latches, Keys, &c., &c.
110 South 8th St., and Sansom, bet. 8th
and 9th, PHILADELPHIA.

PATENTED
Scand. Pad Locks.
With Flat Keys.
Shackle secured to
the Lock Box.

HILLEBRAND & WOLF.

A. A. WEEKS,
Hardware Specialties,
89 John St., New York.

REDUCTION IN PRICE LIST
FOR THE FALL TRADE.
AMERICAN MINING KNIFE,
BEST AND CHEAPEST.

WITH
**ONE, TWO
and
Three Blades.**
Pat. Feb. 11, 1879.

Catalogue of Hardware Novelties upon applica-
tion.
PHILADELPHIA NOVELTY MFG. CO.,
821 Cherry Street, Philadelphia, Pa.

CLOTHES WRINGERS.

**"EUREKA"
WRINGER.**
BOSTON.

T. J. ALEXANDER, Manager
BOSTON, MASS.

THE ANSONIA CORRUGATED STOVE PLATFORM, With Patented O. G. Border.

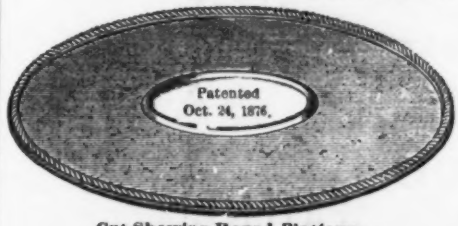
ROUND ZINC.

27, 30, 32, 34, 36 inch.

Manufactured of heavy metal, requiring
no nailing or lining, the edge retaining its
form. Superior pattern, finish and quality.
Price as low as any.

Send for List and Discount.

Packed 12 in each case.



Cut Showing Round Platform.

THE ANSONIA STOVE REST.



This Cut is the Actual Size of 2-inch.

STOVE RESTS are designed to
place under the feet of Stoves
and Ranges, for the purpose of
raising them from the floor or
platform. They are about 1/2-
inch thick, covered with sheet
metal in zinc, brass and nickel
plate. Highly polished and
finished. Packed one set of 4 pieces
in each paper box, and 36 sets in
each case. Sizes (inside of circle
on top)

2, 2 1/2, 2 3/4, 3 1/2 inch.

Send for full Description
and Prices.

ANSONIA BRASS AND COPPER CO., 19 Cliff St., New York.

NEW YORK BELTING AND PACKING COMPANY.

The oldest and largest manufacturers in the United States of

Vulcanized Rubber Fabrics

In Every Form, Adapted to Mechanical Purposes.

MACHINE BELTING with smooth metallic
surfaces. FRICTION BELTING in every form and variety.
STEAM AND RUBBER HOSES, of any size
or strength. LEADING AND SECTION HOSES, of any size
or strength. "TEST" HOSE.—This extra quality of Rubber
Hose is made expressly for steam fire engine use,
and will stand a pressure of 400 lbs. per square
inch.



SOLID KEROSENE VULCANITE WHEELS for
grinding and polishing metals—the ORIOLE
K.M. Solid Emery Wheel, of which all other
kinds are imitations and greatly inferior.
ALL KINDS OF RUBBER BELTING, of superior quality, and of
any size or thickness. PATENT "SMOOTH BONE" RUBBER SHOES
FOR HOSE.

CABLE ANTISEPTIC COTTON HOSE. Patented July 8, 1879. This is a rubber-lined, extra heavy Cotton
Hose, woven seamless in a peculiar manner, to insure compactness and durability. The 3-ply weighs
5 lbs to the section, and has been tested to 400 lbs. It is the lightest and most durable seamless Cotton
Hose in the market. For use on Hand or Steam Fire Engines.
ANTISEPTIC LINEN AND RUBBER-LINED LINEN HOSE. A cheap and durable article for mining,
mill and factory purposes. Will stand a pressure of 300 lbs. per square inch.

CAUTION.—Our name is stamped in full on all our best Standard Belting, Pack-
ing and Hose. Buy that only. The best is the cheapest.

WAREHOUSE, 37 and 38 Park Row, New York.

JOHN H. CHEEVER, Treasurer.

Price lists and further information may be obtained by mail or otherwise on application.

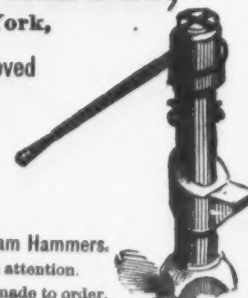
RICHARD DUDGEON,

No. 24 Columbia Street, New York,

Maker and Patentee of the Improved

Hydraulic Jacks

AND
Punches.



Roller Tube Expanders and Direct Acting Steam Hammers.
Communications by letter will receive prompt attention.
Jacks for pressing on Car Wheels or Crank Pins made to order.

EVERY PUTNAM NAIL

is drawn down to a point from the rod, thus:

Is the only Hot Forged and Hammer Pointed Horse Shoe Nail, made by ma-
chinery, in the World.

Some other manufacturers claim to make a hot forged Nail, but you will observe on all such a
sheared edge near the point.

THE PUTNAM NAIL CO., Boston.

P. O. Address, Neponset, Mass., U. S. A.

The Duty on Old Iron Rails.

The Bulletin of the American Iron and Steel Association has the following, which will be read with interest, as the duty on old iron rails is an important matter in view of the recent increase of importations:

The Baltimore and Ohio Railroad Company recently appealed to the Secretary of the Treasury from an assessment of duty levied by the Collector of Customs at Baltimore, at the rate of 70 cents per hundred pounds, on certain old iron rails imported per steamship Germania. The appellants claimed that the rails in question were fit only for remanufacture, and should be classified as wrought scrap iron, at a duty of \$3 per ton.

After a general review of the subject, Assistant Secretary French, in his opinion, says: This Department has to state that the general fitness for use, other than the remanufacture of old rails imported into the United States, is not to be determined by the mere possibility of such use, because it no doubt would be possible, by adapting new fish plates, to use, without remanufacture, very many of the old rails imported in good faith for rerolling purposes. The general character of the importation should be considered, rather than the exceptional condition of a small part of it, where, as a whole, the rails are only fit for remanufacture. Where there is evidence of a fraudulent intention to pass as scrap iron rails suitable for other uses than remanufacture, with intent to use them as rails without rerolling, it is the duty of the customs officers to seize them for forfeiture.

Old rails, of a character which are not generally used in the United States, are double-headed rails, and which, by their special character, are generally unfit for purposes in this country other than rerolling, may properly be classified as old scrap iron.

The classification of invoices of old iron rails may be determined generally by the obvious uses for which they are intended, and they should be admitted at a duty of \$3 per ton, unless there are reasons for believing that they are to be sold and used in the condition as imported without being rerolled.

Upon a perusal of the report of the appraiser in the present case, and considering the character and condition of the rails in controversy, it is evident that a strict application of the terms of decision No. 4129 (under which the duties in this case were assessed) might justify the classification of such rails at the rate of duty imposed upon new rails, but the department is of opinion that a broader view may be safely adopted in determining generally the classification of these rails for duty. The report of the appraiser further shows that, under the views above expressed, the rails involved in this appeal are of a character which may properly be regarded as old scrap iron, fit only for remanufacture.

The Collector of Customs has, therefore, been authorized to readjust the entry at the duty of \$3 per ton, and forward a certified statement for refund of excess of duty exacted.

The Nettlefolds Card.

As a matter of information, in view of the large amount of iron that is ordered from abroad, we append Nettlefold's card on iron. This varies materially from the standard South Staffordshire card, which many American buyers have:

PRICES FOR BASE SIZES.
Base sizes are: Rounds and Squares, 1 1/2 to 1 3/4 in. Flats, 3 to 1 1/2 in. wide by 1 to 5-16 in. thick. Ovals, Convex and Half Rounds, 1 1/2 to 1 3/4 in. thick.

Base	Best bars	Best bars above base	Best bars above base	Best bars above base
Base	Base	Base	Base	Base
Base	Base	Base	Base	Base
Base	Base	Base	Base	Base
Base	Base	Base	Base	Base

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THE DUTY ON STEEL BLOOMS.

Statements of Both Sides of the Case.

Below we present a variety of interesting reading in the matter of the duty on steel blooms:

Statements and Affidavits on Behalf of Importers.

The following statements and affidavits in behalf of importers, were presented to the Treasury Department by their counsel, during the consideration of the question of the classification of steel blooms, lately decided by Judge French:

STEEL BLOOMS AND THE PROPER DUTY THEREON.

Steel blooms are not, as such, mentioned in the present tariff. A steel bloom is a form of steel which is sold in the market for the purpose of afterward being made into various manufactures of steel.

An ingot of steel is a casting of steel, just as it has been taken from the mold into which the melted steel has been poured. Its texture is crystalline, and it contains more or less blow-holes, so-called, which occur in the casting. A steel bloom is made from an ingot, by heating the ingot, and by then rolling it in the blooming mill, or by then hammering it under steam hammers. The object of this rolling or hammering is to make the steel more compact, by removing the blow-holes, and to, as it were, lengthen the texture of the steel, and thus give it strength.

In practice, a steel ingot has been passed through the rollers at least a dozen times before it becomes what is called a bloom. Steel blooms may be of various sizes and shapes, but the size which has chiefly been imported into the United States weighs from 600 to 700 pounds (See the affidavit of Mr. Nock, hereto annexed).

Steel blooms have been imported into the United States at least since 1867, in which year the appraiser at New York first classified them as steel in any form not otherwise provided for, and assessed them at the rate of 30 per cent. ad valorem. He afterwards classified them as manufactures of steel, or articles of steel partly manufactured, and assessed them at the rate of 45 per cent. ad valorem.

This classification and rate was approved by the Treasury Department July 27, 1867, and again May 8, 1863, and again May 20, 1870, and again August 27, 1879, and again in September, 1879.

We annex copies of the decisions relating thereto, and also of the provisions of the tariff, thought to be important to be considered in connection therewith.

And now, after a uniform ruling for the past 12 years, without any change in the facts or in the tariff, the department is called upon to change its ruling, not from the suggestion of its own officers, and not from the suggestion of the importers, but at the suggestion of steel manufacturers in the United States, who have no interest in the matter except to prevent the importation of the blooms.

It is demanded in behalf of these manufacturers that the duty to be levied on steel blooms should be a specific duty, instead of an ad valorem duty, and this demand is made because, since the Tariff Act was passed in 1864, the cost of the production of steel has so much diminished, and the market value thereof proportionately been so lessened, that the specific duties in the tariff upon steel articles have, in fact, become prohibitive duties.

It is evident, from an examination of the tariff on steel, that it was the intention of Congress to fix a duty of from 30 to 50 per cent. on all forms of steel and steel manufactures, for whenever the duty is ad valorem, it runs from 30 to 50 per cent., and whenever it is specific, and a comparison is made with the price current, at the time (1864) it will be seen that the specific duties as fixed were, as above stated, from 30 to 50 per cent.; take, for instance, the following paragraph: "Steel in ingots, bars, coils, sheets and steel wire, not less than one-fourth of an inch in diameter, valued at 7 cents per pound or less, 2 1/2 cents per pound; valued at about 7 cents and not above 11 cents per pound, 3 cents per pound."

The duty of 2 1/2 cents per pound on ingots worth 7 cents per pound would be a little more than 30 per cent., the duty at 3 cents per pound on ingots worth from 7 to 11 cents per pound would vary from 43 per cent. to 27 per cent.; and thus if, in 1864, steel blooms had been classed as steel ingots, they would not have had to pay a specific duty of more than 35 per cent. ad valorem.

In 1867 no one seemed to consider that a steel bloom was possibly either a steel ingot or a steel bar.

The only question was whether it was a manufacture of steel, or whether it was steel in some form not provided for. As we have said, it was first held to be the latter, and finally classed as the former; so that, in 1867, the department classed steel blooms in that class in which it was able to obtain the highest possible duties at the time, namely, 45 per cent.

To-day the price of steel railway bars in England is about 1 1/4 cents per pound, and the price of steel blooms is about one cent per pound.

One and a quarter cents per pound on steel railway bars is equal to an ad valorem duty of about 100 per cent., and 2 1/4 cents per pound on steel blooms would be equal to about 200 per cent. ad valorem. So that now we find the steel manufacturers here insisting, on the one hand, that steel blooms are ingots, and on the other hand, that they are steel railway bars; that is, on the one hand, that they are steel in a simple casting, and, again, that they are castings of steel which have once been rolled into blooms, and so must be classed as if they had been again heated and rolled into steel railway bars.

But whether they insist that these blooms are steel in its crude state, or in its complete state of a manufactured article, their purpose in either case is the same, viz., to persuade the department to classify these

RUSSELL & ERWIN MANUFACTURING COMPANY,

Manufacturers of HARDWARE.

FACTORIES - - - NEW BRITAIN, CONNECTICUT, U. S. A.

MANUFACTURERS' AGENTS AND DEALERS IN GENERAL HARDWARE AT OUR

WAREHOUSES: NEW YORK, 45 & 47 Chambers Street; PHILADELPHIA, 425 Market Street; BALTIMORE, 17 South Charles Street.

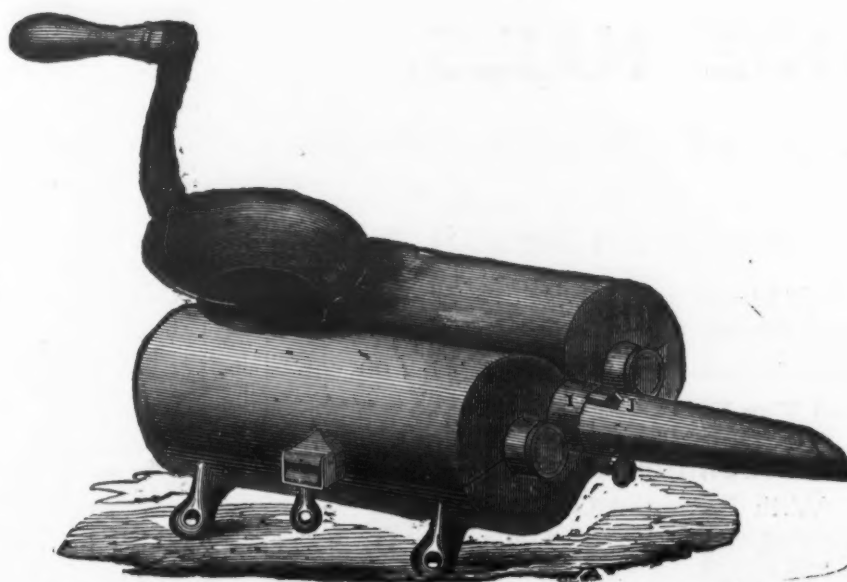
Polished Steel Fire Irons.

Fire Iron Stands.

Iron and Brass Head Shovels,

Tongs and Pokers.

Coal Tongs.



Hale's Meat Cutter.

Hale's Meat Cutters.

Butcher's Meat Cutters.

Waterman's Cast Iron Bake
Pans,

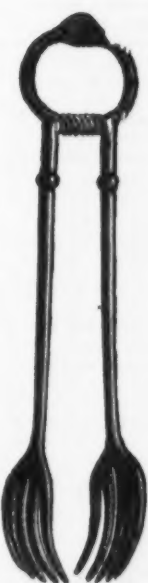
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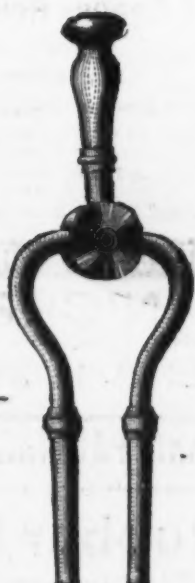
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Nos. 1 & 2.



No. 33.



No. 34.



Brass Head.



No. 26.



No. 175.



No. 20.



No. 34.



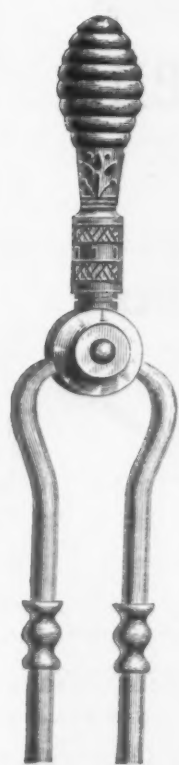
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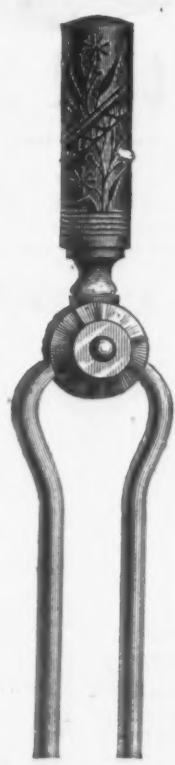
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No. 530.



No. 75.



Nos. 50 to 54.



Nos. 60 & 63.



No. 40.



No. 11.



No. 31 1-2.

COLEMAN EAGLE BOLT WORKS

ESTABLISHED 1845.

WELSH & LEA. NORWAY IRON CARRIAGE & TIRE BOLTS, AXLE CLIPS, &c.

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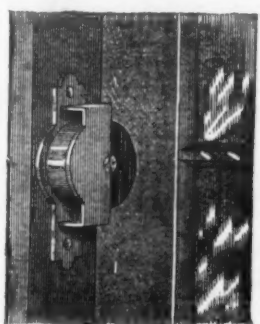
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RATTLER,

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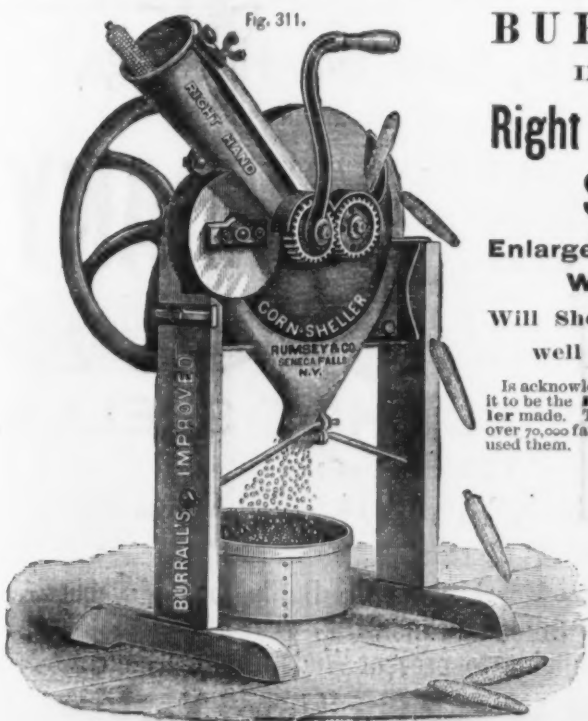


The Anti-Window Rattler supplies a long needed want: it is so simple in construction that it can be used on any window, and so complete that it will prevent the slightest shaking, no matter how great the jar or how old the sash. As shown in cut, it consists of a rubber wheel in a nickel-plated or brass frame; is ornamental as well as useful, and does not interfere with raising or lowering the sash.

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Enlarged Hopper with
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Will Shell the Largest as
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Is acknowledged by all who have used
it to be the **Best Hand Corn Shel-**
ler made. These facts are attested by
over 70,000 farmers who have bought and
used them.

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and the very low price of nickel material, enables
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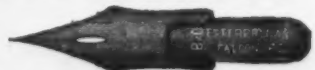
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Stove Work, giving a pure white deposit on plain
or metal surfaces.
Outfits complete, with Dynamo-Electric Machine
Tanks, Anodes, Solution, &c., &c., \$50.
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facturers among 500 other houses using the Weston
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by grant or purchase of all forms of Automatic
Switches for Plating Machines. The adoption of these
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steel blooms in such a way that they cannot
be imported into the United States.

The inconsistency of these steel manu-
facturers is very great. But it would not be
so great as would be the inconsistency of
the department for 12 years to classify these
articles as partially manufactured articles,
and during that time get the highest duty
possible ad valorem, and then, when the
price of steel had changed, to change that
classification and classify them either as
ingots or as manufactured articles, in order
that they might again, without any change
in the law or in the character of the article,
but by a simple change in the ruling, con-
tinue to get the highest possible duty under
the changed state of facts.

In the behalf of the importers who have
imported steel blooms, and who have made
contracts both to buy and sell them, we
say:

1. The department should adhere to its
ruling as maintained for the last 12 years,
unless it shall determine that it would be a
gross error to do so.

2. If the department is to change its
rulings at all as to the duty on steel blooms,
it should fix it at 30 per cent., under Section
1041, instead of 45 per cent. ad valorem, un-
der Section 1012.

Steel blooms are not "such manufactures
of steel" as are referred to in the paragraph
fixing the duty at 45 per cent.

The manufactures of steel therein referred
to are manufactured steel articles which are
intended to be used in the general form and
shape in which they are imported, as, for
instance, axes which had not been fully
ground, or shovels which had not yet been
provided with handles.

A steel bloom is no more a manufacture of
steel than is an ingot or bar or sheet of
steel. A steel bloom is steel in a different
form from an ingot, bar or sheet; it is of
different texture from each of them; it is of
different texture from either; it has been
rolled, while an ingot has not been rolled at
all, and while a bar or sheet has been more
rolled; but it is no more a rail than it is a
spade, or than an ingot is a spade. The fact
that the bloom of the size which is
usually imported is of such a size as that
one rail can be conveniently made from it
without much waste, does not make it a par-
tially manufactured rail.

This department has already decided in
regard to an importation of steel in sheets,
as follows: "Steel in sheets invoiced as the
best cross-cut, though it may be used for
saws, should not be classified as cross-cut
saws partially manufactured, at 10 cents per
lineal foot, since the material may be used
for hay knives, mowing-machine knives and
other purposes. It should be classified as
'steel in sheets,' according to its value per
pound" (August, 1868, N. O., and April
21st, 1871, N. Y.) So, also, of steel sheets of
a circular form (June 19th, 1866, San Fran-
cisco.)

The same ruling would apply to steel
blooms which might be made into rails, for
such steel blooms are not partially manu-
factured. They are a form of steel not other-
wise provided for, and the duty on such
steel by section 1041 is fixed at 30 per cent.
ad valorem.

The section of the tariff relating to "man-
ufactures of steel" follows the express
provisions with reference to skates, saws,
knives, needles, &c., and evidently refers
to similar manufactures of steel not men-
tioned.

The section relating to "steel in forms
not otherwise provided for" follows the ex-
press provisions in regard to "steel in in-
gots, bars, coils, sheets and steel wires," and
evidently refers to steel in some other form
from which it is to be manufactured into
special articles of steel, and it cannot be
maintained but that a steel bloom is such a
form of steel.

Under this same section as to steel in any
form not otherwise provided for, the de-
partment has classified steel bars slightly
tapered (September 17, 1863, New York).

Under this same section it has classified
old scrap steel which consists of various old
or broken articles of steel (rulings in New
York).

And under this same section it has also
classified steel rail ends (March 15, 1879,
Boston).

The department has thus recognized this
section as applicable not only to steel in dif-
ferent exterior forms not otherwise provided
for, but also to different qualities of steel,
for the rail ends, were, doubtless, of Bes-
semer steel, while the scrap steel and the
tapered steel bars were probably of crucible
steel.

3. Steel blooms are neither steel ingots,
bars or sheets of steel, and are not, there-
fore, to be classified under section 1038.

The evidence is conclusive on this point.
4. Section 2499 of the Revised Statutes,
which provides for the assimilation of non-
enumerated articles in order to a proper es-
tablishment of the rate of duty, is not ap-
plicable to steel blooms.

Steel blooms are a form of steel not speci-
ally mentioned, but there is an especial
provision in regard to steel in any form not
otherwise provided for, and that provision
renders the provision as to assimilation in-
applicable. And so the department has de-
cided in the letter of March 15, 1879
(see the letter hereto annexed), with
reference to the ends of street railway
bars, in which the department has fixed the
duty upon them at 30 per cent. ad valorem,
as steel in a form not provided for. A sim-
ilar decision must undoubtedly be made as
to any attempt to assimilate steel blooms to
ingots or bars.

5. Even if it were possible upon a fair
construction of the tariff for the depart-
ment, as a new question, either to classify
steel blooms in such way that they would
pay either 30 per cent. or 45 per cent., or
1½ cents per pound or 2¼ cents per pound,
the department would give it such construc-
tion as would allow its importation rather
than prevent its importation.

6. Especially should it do this when it is
evident from the facts before it that the
specific duty would be much higher rela-
tively than it was originally intended to be
by Congress, for the reason that, since the
act of Congress, the price of the article had
very much cheapened.

7. The department having for a series of

years adopted a classification which charged
steel blooms with the highest duty possible,
will not now change such classification for
the purpose of continuing to charge the
highest possible duty.

8. It will not do this at the demand of a
committee of steel manufacturers whose sole
interest therein is to prevent importation.

9. It will not do this to the great injury
of merchants who, on the faith of the past
decisions of the department, have entered
into large business transactions at home and
abroad, and who will lose large sums of
money if the change is made.

10. It will not do this when the only re-
sult will be to diminish the revenues of the
government.

11. It will not do this when the holding to
its old opinion will be to enable the railroads
of the country to obtain the rails needed, but
without lowering the price in the United
States.

12. It will not do this in regard to a raw
material which is to be converted into the
manufactured article in the United States
by the skill and labor of United States citi-
zens.

13. It should only do this when its former
rulings are shown to be clearly erroneous
and to the great diminution of the revenue.

CHARLES C. BEAMAN, JR.

AFFIDAVIT OF HENRY A. V. POST.

In the matter of the duty on Steel Blooms,
before the Treasury Department, Octo-
ber, 1879.

Henry A. V. Post, being duly sworn, de-
poses as follows:

I am a merchant, doing business in New
York City; one of the firm of Clark, Post
& Martin. Our business is largely that of
dealing in iron and steel, and I have had to
do with the buying and selling of iron and
steel since 1850, and have had large transac-
tions therein.

Previous to 1864 the Bessemer steel pro-
cess, so called, was worked very expensively,
as compared with the cost at which it is now
worked. The Bessemer process produces a
quality of steel which is not for some pur-
poses so good as steel produced by other
processes, but it is sufficiently good for
many purposes. In 1864 the price of steel
rails made by the Bessemer process was
about \$150, gold, in the United States, duty
paid, and that price continued substantially
the same, never getting below \$100, gold,
till 1865 or 1866. Since then the cost of
producing steel by the Bessemer process has
been so much diminished that now steel
rails made in England by that process can
be sold in the United States, duty paid, for
about \$60. The price in Europe of what is
known as crucible steel, has not changed
much since 1864.

The specific duty to-day of 1 and 1¼
cents a pound on steel rails is now equal to
about 100 per cent. ad valorem, and in 1864
the same specific duty of 1 cent would have
been equal to about 30 per cent. ad valorem.

The duty to-day on steel blooms, if classed
as ingots and bars, would be nearly 200 per
cent. ad valorem. In 1864 the same specific
duty would have been not more than 40 per
cent. ad valorem.

To-day there is a great demand for steel
rails in the United States, and all the manu-
facturers of steel rails are running full, and
are unable to take any orders for the de-
livery of steel rails at a date earlier than
April next.

The price of steel rails in the United States
for rails made here by the Bessemer process
is to-day about \$55, for delivery after April,
and steel blooms cannot be imported in the
United States, at the market price abroad
to-day, and pay a duty of 45 per cent. ad
valorem, and the usual expenses thereon,
and be here rolled into steel rails, and sold at
a profit at less than \$56. So that the impor-
tation of steel blooms to be made into rails
would in no way lower the price of steel rails
in the United States. It would only enable rail-
roads that wanted rails to get them at once,
and pay the additional price, which they
will have to pay on rails made from im-
ported blooms if the parties that import
them make any profit.

My firm have made large contracts for
steel blooms in Europe within the last three
months, believing that on account of the
great present demand for steel rails, and
the inability of the United States manu-
facturers to supply that demand, they could im-
port them into the United States, and sell
them for the purpose of being made into
rails and for other purposes, and could
make a profit thereon, after paying the rate
of duty which the department had fixed,
namely 45 per cent. ad valorem, which
decision of the department was confirmed
by the department in a letter to our own
bankers.

If the department now determines to as-
sess a duty upon these blooms as steel rails,
or as steel in ingots or bars, the importation
of them will be practically impossible, and the
blooms will have to be resold on the other
side at a loss, and we shall be obliged to pay
a very considerable sum to cancel our ex-
isting contracts there and here.

As a matter of fact, if this change in rul-
ing should take place we shall lose both upon
the contracts we have made in the United
States, and also upon the contracts we have
made in Europe.

We had proposed to manufacture steel
rails from most of the ingots we have im-
ported, but we can sell them in the United
States to be used for other manufactures of
steel, and will do so if we can import them
by paying 45 per cent. ad valorem.

They are of such size that one rail can be
conveniently rolled from them, but we can
roll conveniently a great many other articles
from them, and find abundant market for
them, for such purposes.

HENRY A. V. POST.

AFFIDAVIT OF THOMAS G. NOCK.

In the matter of duty on steel blooms, be-
fore the Treasury Department, October
1879.

City and County of New York, ss:
Thomas G. Nock, being duly sworn, de-
poses and says:

I reside at Rome, N. Y.; I am 51 years old;
I am the Superintendent of the Rome Iron
Works; I have been engaged in the manu-
facture of iron and steel since I was 14 years old.
I have manufactured steel, but never by the
Bessemer process: I am familiar with that

Cuts of a few goods made by

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BEST QUALITY CARRIAGE MAKERS' HARDWARE.

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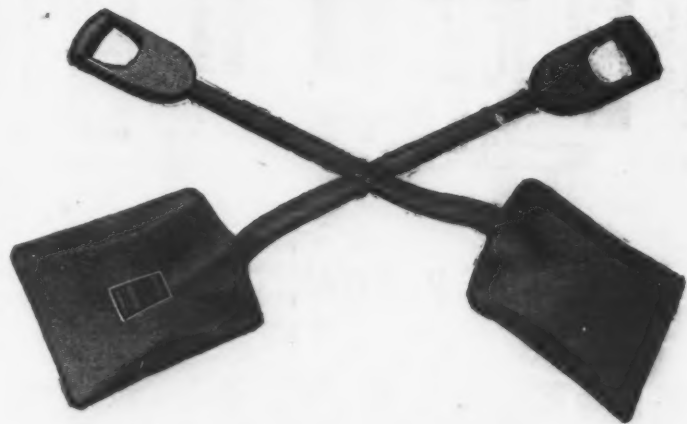
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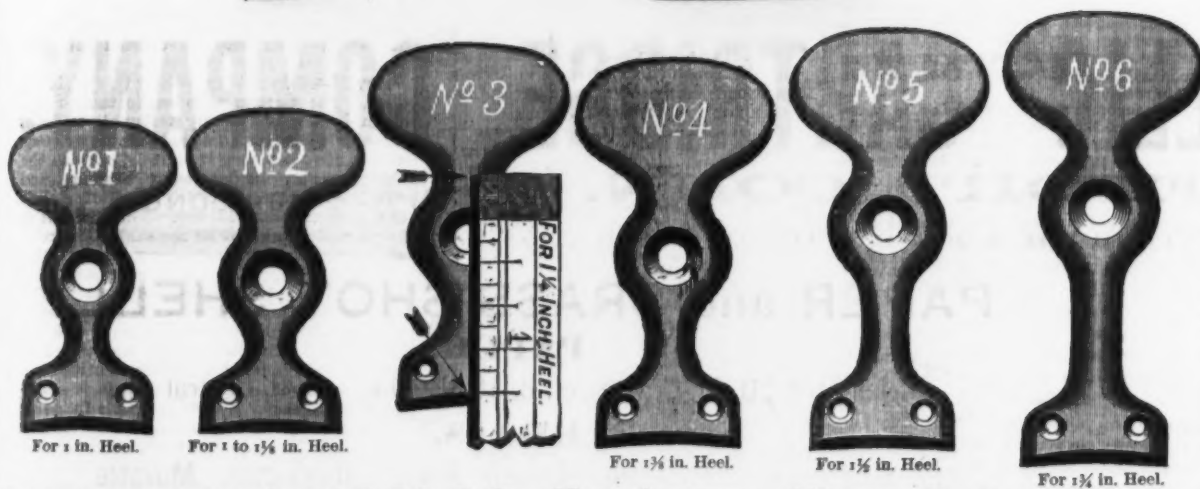
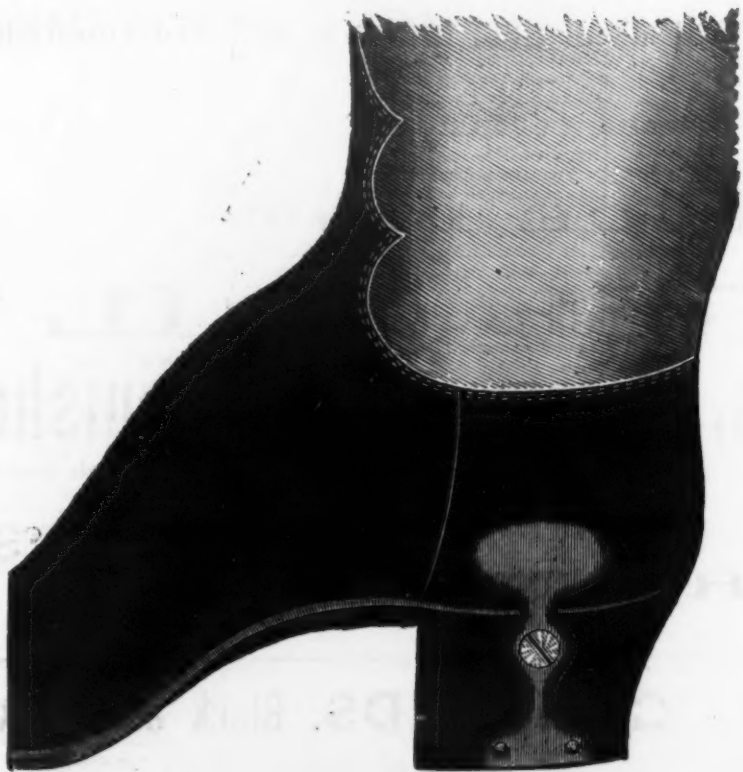
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Every Pair is Warranted to bend to fit the Boot without Breaking.

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456 E. Houston St., New York City.

process, and have often visited the various works in the United States that are manufacturing steel by that process; I am familiar with what is known as a steel bloom, and have been for at least 10 or 12 years; a steel bloom is steel in a different form either from an ingot, or from a billet, or from a bar, and these differences consist in the difference of time in the process of manufacture at which it is put upon the market.

Steel made by the Bessemer process or by the crucible process is first cast into an ingot, which ingots are of the size and shape of the mold used, and which ingots have the greater or less imperfection of all castings; these ingots have a crystalline texture, and, besides, have more or less blowholes.

Steel is sometimes sold in the shape of ingots, which in a general sense is the only product of the steel works, but generally in connection with the works where the steel is produced there is also a blooming mill, so called, in which blooming mill various improvements and patents have been made; this blooming mill consists generally of a furnace in which the ingots are heated to a red heat, and also of what is called a three-high train of rolls, by means of which the heated ingot is passed through the rollers a dozen times or more, till it has acquired such shape and texture as is desired.

By this rolling the blowholes are mostly removed, and the texture of the steel is changed from the merely crystalline texture of the ingot, to a texture in which, so to speak, the grain is elongated, making what is known as a needle texture.

After the rolling in the blooming mill, the steel is taken to the hammer, and there cut into two or more pieces, each of which piece is called a bloom; these blooms are in no sense a manufacture of steel any more than an ingot, or a bar, or sheet steel; they are steel in a different form either from ingots, or bars, or sheet steel; these blooms are steel in a form in which they are ready to be manufactured into the desired articles: the most of the steel blooms that I have seen have weighed from 600 to 700 pounds, and have been about 7 inches square, and from 3 to 4 feet long; if these steel blooms are to be manufactured into billets, bars, sheets or rails, they would be again heated to a red heat and passed through the rollers that would give to them the size and shape desired.

This additional heating and rolling would entirely remove the blow-holes, if any were left, and would still further elongate the texture of the steel and make it of more needle texture; the effect of additional rolling upon steel is to give it more strength and ductility and fit it better for tempering; there is nothing in the shape or size of a bloom to indicate into what articles it is proposed to manufacture it; but as steel blooms are, to a very considerable extent, made into steel rails in the works in this country, most of the blooms I have seen have been of a size and weight adapted to the making of one or two rails.

A steel rail is made from a bloom by heating the bloom to red heat and by passing it through the roller from 13 to 15 times; if the bloom is of the size I have above indicated it would only make one rail, and when it was rolled the ends would be cut off, leaving the rail of the proper length, say, 30 feet; if the bloom was rolled into billets, it would make more or less, according to its size; a billet is generally from 1 1/4 to 1 1/2 inches square and of different lengths, say, from 6 to 12 feet. Billets are generally used for the manufacture of wire and various small sizes of round, square or flat steel.

If bar steel is made from blooms, then a bloom will make more or less bars, according to the size of the bloom and of the bar required. Steel from bars is generally manufactured into a variety of tools and agricultural implements.

A steel bloom may also be rolled into a sheet in the same way that it would be rolled into rails or billets or bars.

A steel bloom is in no sense a manufacture of steel, except in the same sense that an ingot and a bar and a sheet is a manufacture of steel; a bloom is a more advanced manufacture of steel than an ingot, but less advanced than a billet or a bar or a sheet.

The blooms that I have spoken of heretofore have been blooms that are made by the Bessemer process, but blooms are also made by hammering—that is, the ingot is heated to a red heat, and instead of being changed in the texture by rolling, is changed in texture and size by hammering, but hammering and rolling in each case produce the same effect.

THOS. G. NOCK.

EXTRACT FROM REVISED STATUTES OF UNITED STATES.

"1012. All manufacturers of steel, or of which steel shall be a component part, not otherwise provided for, 45 per cent. ad valorem. But all articles of steel partially manufactured, or of which steel shall be a component part, not otherwise provided for, shall pay the same rate of duty as if wholly manufactured."

"1013. Steel railway bars, 1 1/4 cents per pound."

"1014. Railway bars made in part of steel, 1 cent per pound; and metal converted, cast or made from iron by the Bessemer or pneumatic process, of whatever form or description, shall be classed as steel."

"1035. Steel in ingots, bars, coils, sheets and otherwise, not less than one-fourth of 1 inch in diameter, valued at 7 cents per pound or less, 2 1/2 cents per pound; valued at above 7 cents and not above 11 cents per pound, 3 cents per pound; valued at above 11 cents per pound, 3 1/2 cents per pound and 10 per cent. ad valorem."

"1041. Steel, in any form not otherwise provided for, 30 per cent. ad valorem."

"Provided, That no allowance or reduction of duties for partial loss or damage shall be hereafter made in consequence of rust of iron or steel, or upon the manufactures of iron or steel, except on polished Russia sheet iron."

PAST DECISIONS OF THE DEPARTMENT.

Steel Blooms—Steel Tire Blooms.

TREASURY DEPARTMENT, July 27, 1867.

SIR: Your communication of the 26th instant is received, enclosing a further report from the United States Appraiser at your port on appeal (No. 4470) of Messrs. John Triffet & Brother from your decision assess-

ing duty at the rate of 45 per cent. on certain so-called steel blooms imported by them per Pennsylvania, Tariffa and Denmark. An investigation of the matter shows that the articles in question were examined in store about the 12th of March last, and that the Appraiser returned them as "steel in any form not otherwise provided for," and duty at the rate of 30 per cent. was accordingly assessed thereon. Subsequently, however, the Appraiser renewed his return in the premises, and classified them as manufactures of steel, or articles of steel partially manufactured, and the rate of duty was thereupon changed from 30 per cent. to 45 per cent. ad valorem.

This question is, therefore, one of fact, and as the Appraiser states that he is convinced that the articles are properly classified as manufactures of steel, or articles of steel partially manufactured, your assessment of duty thereon at 45 per cent. ad valorem was correct. I am, very respectfully,

By order, J. F. HAWLEY,
Collector of Customs, N. Y. Ass. Sec.

Extract of Letter of May 8, 1868, from Treasury Department to Collector of New York, as to Duty on Steel Blooms on Appeal 5481.

Steel blooms are liable to 45 per cent. duty, by virtue of Section 3, Act of June 30, 1864 (13 Rev. Stat. p. 205), and department decision of July 27, 1867. "as manufacture of steel or of which steel shall be a component part, not otherwise provided for."

Duty on Steel Blooms.

TREASURY DEPARTMENT,
OFFICE OF THE SECRETARY,
WASHINGTON, D. C., May 20, 1870.

Messrs. Heyerdahl, Schonberg & Co., P. O. Box 3805, New York.—GENTLEMEN: Your letter of the 10th instant is received, inquiring the rate of duty on Bessemer steel blooms and plates of English iron known as iron fish plate or fish bars.

In reply you are respectfully informed that "steel blooms" are liable to 45 per cent. duty by virtue of Section 3 of the act of July 30, 1864, and department's decisions of July 27, 1867, and May 8, 1868, as "Manufactures of steel, or of which steel shall be a component part, not otherwise provided for, and that Bessemer steel blooms are subject to a similar classification and rate of duty."

Department's decisions of December 11, 1867, and November 14, 1868, held that "wrought-iron fish plates, fish joints or splice bars" should be classified by assimilation, by virtue of Section 20, act of August 30, 1842, as wrought-iron railroad chairs, at 2 cents per pound, under paragraph 14, Section 3, Act June 30, 1864; all spikes and bolts for like use at 2 1/2 cents per pound under paragraph 16 of the same section and act.

I am, &c.,
(Signed) GEO. S. BOUTWELL, Sec.

Duty on Steel Rail Ends.

TREASURY DEPARTMENT, March 15, 1870.

SIR.—The department is in receipt of your letter of the 8th ultimo, in the matter of the appeal (663 f.) of Messrs. Naylor & Co., from your assessment of duty at the rate of 2 1/4 cents per pound on certain steel rail ends imported by them per Bulgarian, December 27, 1878. The appraiser reports that the steel in question consists of imperfect ends of steel railway bars, cut off in the process of manufacture, and it appears that they were classified for duty at the rate of 2 1/4 cents per pound, under the provision of Schedule E, Revised Statutes, for "steel in bars."

This steel is not in the form of bars, and the provision for steel in any form not otherwise provided for clearly embraces this class of merchandise, unless it is to be classified by virtue of the similitude clause in Section 2499 of the Revised Statutes, as assimilating to steel in bars under the printed decision of the department No. 3624, which requires that scrap iron cut from the ends of iron bars should be classified as bar iron. That decision, however, was made in consequence of the fact that there was no provision in the statute for iron in any form not otherwise provided for, and as there is a provision for steel in any form not otherwise provided for, printed decision No. 3624 is considered as not applicable to the present case. The merchandise is, therefore, held to be liable to duty at the rate of 30 per cent. ad valorem, under decision 716 of August 4, 1870, as steel in any form not otherwise provided for, and you will readjust the entry accordingly, and forward a certified statement for a refund of the excess of duties paid.

You will also cause your practice to conform to your decision. Yours respectfully,
H. F. FRENCH, Assistant Secretary.

Collector of Customs, Boston, Mass.

Duty on Steel Blooms.

TREASURY DEPARTMENT,
OFFICE OF THE SECRETARY,
WASHINGTON, D. C., August 27, 1870.

James M. Swank, Esq., 256 South Fourth street, Philadelphia, Pa.—SIR: In reply to your letter of the 23d inst., addressed to Mr. James, of this office, requesting to be furnished with any decision of the department made in regard to the duty on Bessemer steel blooms, imported to be rolled into rails, I inclose a copy of a decision, dated May 20, 1870, which held that steel blooms were dutiable at the rate of 45 per cent. ad valorem, as manufactures of steel not otherwise provided for. The uses to which such blooms may be put, subsequent to their importation, would not seem to affect the rate of duty thereon. Very respectfully,
(Signed) H. F. FRENCH, Assis. Sec.

(Received September 18, 1879.)
(No date.)

TREASURY DEPARTMENT,
WASHINGTON, D. C.

Collector of Customs, Philadelphia, Pa.: The department is in receipt of your letter of the 9th inst., reporting upon the appeal 3051 of E. Samuels & Co., from your assessment of duty at the rate of 45 per cent. ad valorem on certain steel blooms imported per steamer Illinois, August, 1879.

The appellants claim that the merchan-

(Continued on page 14.)

The Iron Age

AND
Metallurgical Review.

New York, Thursday, November 6, 1879.

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AMES C. EAYLES . . . Editor.
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CONTENTS.

First Page.—Transfer Lathes. The Sweetland-Horton Chuck. Metallurgical Notes.
Third Page.—British Iron and Steel Institute.
Fifth Page.—British Iron and Steel Institute (Continued).
Seventh Page.—The "I X L" Pipe Cutting and Threading Machine.
Ninth Page.—The Duty on Old Iron Rails. The Nettlefolds Card. The Duty on Steel Blooms.
Eleventh Page.—The Duty on Steel Blooms (Continued).
Thirteenth Page.—The Duty on Steel Blooms (Continued).
Fifteenth Page.—The Steel Blooms Controversy. The Holley Converter Bottom. The Duty on Steel Blooms.
Seventeenth Page.—The Duty on Steel Blooms (Continued). A Combination Fruit Press and a Sausage Cutter, by the Enterprise Manufacturing Company. Clark's Patent Rubber Rolls, Wheels and Casters. A Proposed Elevated Railroad.
Twenty-first Page.—Trade Report. General Hardware. British Iron Market.
Twenty-second Page.—Iron. Metals. Coal. Old Metals. Paper Stock, &c. Imports. Philadelphia. Pittsburgh.
Twenty-third Page.—Pittsburgh (Continued). Chattanooga. Boston. St. Louis. Cincinnati. Louisville. Baltimore. Richmond. Our English Letter.
Twenty-fourth Page.—Our English Letter (Continued). Foreign.
Twenty-seventh Page.—The Iron Age Directory.
Thirtieth Page.—New York Wholesale Prices.
Thirty-first Page.—New York Wholesale Prices (Continued).
Thirty-seventh Page.—Philadelphia, Buffalo, Chicago and Pittsburgh Hardware and Metal Prices.
Thirty-ninth Page.—Boston and St. Louis Hardware and Metal Prices.

Prince Bismarck's visit to Vienna appears to have caused as much wild guessing in commercial circles as it has occasioned in politics. One of the main motives of the conference, it is gravely asserted, was to make the preliminary arrangements toward a revival of the old German tariff union, the Zollverein, which is to embrace the Austro-Hungarian and the German Empires. It is pointed out by those hoping for a realization of this scheme, that Prince Bismarck, after gaining over the manufacturing and agricultural interests of Germany, is now trying to conciliate the mercantile classes. But however the idea may be regarded by many German manufacturers, it is certain that large Austrian industries will strenuously oppose it. There are rumors afloat, also, that the Prince has just made the first step toward a repetition of the great Napoleon's experiment of uniting France, Germany, Austria and a number of smaller States by the formation of a tariff union, a scheme which would aim a serious blow at England, although its supporters, for instance, the *Nord Deutsche Allgemeine Zeitung*, disclaim any such inten-

tion. It is curious to note the utter disregard of obstacles which these tariff schemes display. There are also rumors of a project started by an eminent French paper, the *Economiste Française*, which aims at a coalition of Belgium, France, Italy, Switzerland and Holland, forming a kind of Latin tariff union. The bonds of a common language, common coin, &c., which are largely relied upon to effect a harmonious co-operation, are likely to prove weak against the opposition of many and large interests which would be seriously crippled in each of the countries mentioned. Tariff unions such as those which seem to agitate some of our European friends, are very unlikely to obtain the sanction of the people which they seek to attach by closer commercial ties, and therefore little weight should be attached to rumors which might be thought to affect American interests indirectly.

The Steel Blooms Controversy.

We print this week a quantity of interesting and valuable matter relating to the recent decision of Assistant Secretary French, of the Treasury Department, relative to the classification of steel blooms under the tariff. As will be noticed, we give both sides very fully. The matter submitted by the importers, through their counsel, to the Treasury Department during the consideration of the subject, is very full and complete, and gives a synopsis of the literature of the controversy for some years. Following this we give the views of several leading manufacturers of Bessemer and crucible steel respecting the law, its interpretation by the Treasury Department, and the effects which are likely to follow Judge French's ruling. The views of such importers as have favored us with communications are also given. The subject is thus completely presented, and the reader will be able to form an intelligent opinion, however slight his previous acquaintance with the facts of the case.

Our own views on the subject are not materially changed since last week. While we cannot see that the consequences of the Treasury ruling are likely to be so serious as the manufacturers believe, we cannot take the importers' view that it is rather favorable than otherwise to the best interests of American industry. We do not see that the makers of Bessemer steel are likely to be materially injured in their rail business, for reasons already given; but supplies from foreign sources will unquestionably affect the demand for blooms of domestic manufacture, and, in view of the increasing use of Bessemer steel for other purposes than rails, will deprive the makers of other kinds of steel of some part of the advantage which it was intended they should enjoy under such clauses of the tariff as were enacted for their protection. We see no warrant for assuming that the definition and classification of blooms made by Judge French in his decision, apply only to blooms of steel made by the pneumatic process. If it had been so stated in the decision, it is not probable the manufacturers would have troubled themselves about it; but it applies with equal propriety to all forms of steel which, by partial manufacture, can be brought within one operation of bars or other finished products. The question before Judge French was, specifically, what duty should be charged on Bessemer rail blooms; but in his decision he speaks of steel blooms in general, and for this reason it assumes an importance which would not otherwise attach to it. We have authority for saying that Mr. Sherman considers this decision in harmony with previous rulings of the department, and that he has no intention of reversing it; and unless its application is limited to Bessemer blooms by a supplementary letter of instructions to collectors or customs, these officials will be warranted in assuming that anything in the shape of steel in blooms is dutiable at 45 per cent. ad valorem, whether it be for rails or razors, and whether made in the converter or the crucible.

There is no doubt that the importers take this view of the case, and are fully prepared to take advantage of the favorable ruling. J. F. Bailey, of Philadelphia, says on this point: "As the decision made, confirming previous decisions of the same kind, refers only to Bessemer steel blooms for railway tire and for making steel railroad bars, no honorable importer would undertake to bring blooms in for any other purpose." This statement is not warranted by the facts. Mr. Henry A. V. Post, in his affidavit submitted to the Treasury Department with the argument of counsel, says: "We had proposed to manufacture steel rails from most of the ingots we have imported, but we can sell them in the United States to be used for other manufactures of steel, and will do so if we can import them by paying 45 per cent. ad valorem. They are of such size that one rail can be conveniently rolled from them, but we can roll conveniently a great many other articles from them, and find abundant market for them for such purposes." This may be called a common-sense view of the subject from the importers' standpoint. If, as we assume, any kind of steel in blooms can be brought in under Judge French's ruling at 45 per cent. ad valorem, the importers will certainly avail themselves of the chance to import anything for which there is a market, and in which there is a

chance for profit. We see nothing dishonorable in such a course. The Secretary of the Treasury has the right to interpret the meaning of the revenue laws, and when he decides a point in their favor they cannot be blamed for taking full advantage of it.

We have no doubt that a very large part of the immediate benefit which importers expect to derive from the Treasury decision, will be neutralized by the advance in prices on the other side. The British metal markets are just now peculiarly sensitive to reports from this country, and the prospect of an increased American demand for any kind of iron or steel, sends prices up very rapidly. The fact brought out in the interview of our representative with the President of the Edgar Thompson Steel Works, shows this. When it was reported in London that the decision of the Treasury was likely to be that blooms were dutiable at 45 per cent., the price of blooms advanced above the price of rails. This is another case added to the already long list in which a reduction of the duty has been followed by an immediate advance in prices abroad. It is evidently the intention of the manufacturers abroad not to let the importers have all the benefit. How this will affect importations remains to be seen.

The Holley Converter Bottom.

Since our last issue went to press we have received the following letter:

To the Editor of *The Iron Age*.—DEAR SIR: In a leader in your issue of the 23d inst. you say: "It is stated that at least one of the Bessemer mills now in operation has never used the Holley bottom, and if this be true, it would seem that this was not so necessary to the success of the (Bessemer) process as has been imagined." The works referred to has obtained in its results the advantage of the system first put in practice in the form of the Holley bottom. This system is a substitute for the old method, used everywhere before this patent, of cooling off the vessel and setting the bottom from the inside, which made a delay of many hours. If this was not done the bottom was set by pouring fluid mortar into the hot vessel, which did not stand well and made just as much delay. Holley's system was constructing the bottom so that it could be set by inserting the mortar or "ball stuff" to stop the joint from the outside while the vessel was red hot. This was done in half an hour to an hour, instead of several hours, and made the difference between the former small product and the immense present product.

Holley specified ramming the joint from the outside. Refractory materials soon after became so improved that they could be plastered on the joint before it was inserted into the vessel, without much or any ramming. The works referred to endeavored to avoid the Holley patent by using a flatter bottom, and instead of ramming the joint they substituted a plastic refractory mortar, and depended on the security of the joint by drawing the bottom up tight against the vessel. Their attempted avoidance of Mr. Holley's patent is simply preposterous, as frequently the joint leaks and they are compelled to ram it.

The system of setting a bottom in a hot vessel, as first practiced by Holley, is used in all works, and if the wording of his patent does not cover all forms of using it, he still has the credit of introducing the system.

I remain, very truly yours, JUSTICE.

Concerning the above communication, we would say that nothing in our remarks can be fairly interpreted as showing a desire to detract from the value of Mr. Holley's invention or the credit due him. We may have been wrong in assuming that the gentlemen interested in the contemplated new works propose to work outside of the patents owned by the Bessemer Steel Company, Limited, and that this expectation was based on the supposition that at least one Bessemer works was not using the process of making and repairing converter bottoms described in Mr. Holley's patents. This, however, reached us from trustworthy sources, as an answer to the very natural question, How are they to make Bessemer steel except under license? The gentlemen who are named as incorporators of the new company are intelligent and reputable business men, who have not lent their names to a bogus scheme; they are not licensees of the Bessemer Steel Company, Limited, and do not, so far as we can learn, expect to be; and our statement of their views with regard to the practicability of working outside of the patents owned by that company, is probably the correct one. If they are in error on this important point, we have no doubt they will find it out before they have invested their capital in buildings and plant. Meanwhile, Mr. Holley is not likely to suffer in reputation from any course the new company, or any of the old ones, may adopt with regard to their practice in making or repairing vessel bottoms. His record as a mechanical engineer was made long ago, and he is still reaping laurels which, to him, seem a perennial growth. "Justice" gives him none too much credit, and far be it from us to undervalue the services he has rendered the world in promoting the progress of the pneumatic steel industry. But news is news, and if it be true, as we understand, that the Pittsburgh gentlemen connected with the new venture expect to make Bessemer steel without taking licenses or paying royalty, it was quite proper for us to say so.

The Coal Operators and Miners' Board of Arbitration, the rules for the formation of which were published in *The Iron Age* of October 30, has been in session in Pittsburgh, and has fixed the price of mining at 3½ cents per bushel, to last until December 1. This is an advance of one-half cent per bushel.

The French ocean cable between Brest and St. Pierre was successfully laid by the *Faraday* on the 4th inst.

(Continued from page 13.)

THE DUTY ON STEEL BLOOMS.

dise in question is subject to a duty of 30 per cent. ad valorem, under the provision in Schedule E for steel in any form not otherwise provided for.

The question as to the proper rate of duty on steel blooms was passed upon by this department in decision of July 27, 1867, and May 8, 1868.

The article embraced in these decisions was locomotive tire blooms, which differ from the blooms involved in this appeal only in shape.

The blooms covered by the present appeal appear to be practically the same description of merchandise as was covered by the former decisions.

The department, therefore, decides that your assessment of duty at the rate aforesaid was correct, and hereby affirms the same. (Signed) H. F. FRENCH, Assistant Secretary.

TREASURY DEPARTMENT,
OFFICE OF THE SECRETARY,
WASHINGTON, D. C., Sept. 16, 1879.

Messrs. Morton, Bliss & Co., New York.—GENTLEMEN: This department is in receipt of your letter of the 11th instant, stating that you propose to import for one of your clients a consignment of Bessemer steel, hammered and rolled into pieces of 4 to 5 feet long, by from 5 to 7 inches square; and that before giving orders for the merchandise, you desire to know to what rate of duty it will be subject.

You are informed that it is contrary to the practice of this department to decide in advance as to the rate of duty to be assessed on importations.

It appears from your description that the steel will be a partially manufactured article.

If the appraiser shall so report, it will be subject to the same rate of duty as if wholly manufactured, viz., 45 per cent. ad valorem.

A copy of a decision upon an appeal, relating to steel blooms imported at Philadelphia, is enclosed for your information; and if the merchandise to be imported by you is similar to that described in the decision, it will be subject to the rate of duty therein specified. Very respectfully, (Signed) H. F. FRENCH, Assistant Secretary.

How Manufacturers Regard the Decision.

Below we give the views of Messrs. Morrell, Shinn, Corning, Potter, Park, Carnegie, etc.

VIEW OF MR. DANIEL J. MORRELL.

The following report of an interview with Hon. Daniel J. Morrell, general manager of the Cambria Iron and Steel Company, of Johnstown, Pa., and president of the American Iron and Steel Association, will be read with interest:

Reporter.—I should like to know, Mr. Morrell, if you have any criticism to offer upon the recent decision of the Treasury Department fixing the duty on steel blooms at 45 per cent. ad valorem.

Mr. Morrell.—I think it is all wrong, and certain to be very injurious. The Bessemer steel blooms brought in under this decision are partially manufactured rails. At 45 per cent. ad valorem the duty will be about one-half of one cent per pound, while rails are charged 1½ cents per pound. The difference in the duty on the two products is \$16.75 per ton. As these blooms can be made into finished rails at a cost of about \$5 per ton, the result will be that great quantities of blooms will be imported to be finished here as rails. It is a serious blow to our iron and steel industries.

R.—Is not the law as it stands obscure or unsymmetrical?

Mr. M.—I think not. It is true that steel ingots are rated at 2½ cents per pound, while rails are 1½ cents per pound, but when this duty upon ingots was imposed Bessemer steel ingots were not known commercially, and it applied to crucible cast steel, which is a more costly metal. I have never claimed myself that the duty of 2½ cents on steel ingots should be applied to Bessemer blooms.

R.—What are they?

Mr. M.—Ordinarily they are produced in manufacturing steel rails. The steel as cast in its first form is called an ingot, which is reheated and rolled down to a convenient size, and cut to proper lengths for rolling at another heat into railroad bars. When so cut to lengths for one or more rails these pieces are called blooms, but they might be called bars, unfinished rails, or by any other name. You have in the bloom fully eight-ninths of the labor and expense of producing a rail.

R.—Are they not used for other purposes than rails?

Mr. M.—They are, but it is well known that the importations, are for manufacture into rails. The duty on rails is the lowest imposed on any manufacture of steel, and the importer of blooms therefore could not complain if this duty were imposed on his blooms, especially if he proposes to use his blooms for articles of higher cost, and bearing a higher duty. The appearance of the bloom, its shape, the method of its manufacture, and the use generally made of it, stamp it as an unfinished rail. If one is very anxious to see something else in it he can do so, but that, at least, must be seen, unless blindness is willful.

R.—I observe that Judge French concedes this, but says the rail duty would be prohibitory, and should not be adopted unless the demands of the law imperatively require it.

Mr. M.—A very poor reason, I think. The object of the tariff is not to encourage importations, but to afford protection. Its protective character is strongly marked in the almost invariable advance of duty as the article is advanced in value. The duty on rails does not prohibit their importation; they are coming in, and Judge French merely allows steel to be brought in, in blooms, at an excessively low duty, instead of rails at a duty which the article can bear. Unless the result is an enormously increased importation, the government will lose revenue, and if there is an enormous increase the injury to business will be such that the

government and the country must, in the end, suffer by it.

R.—Is there not a rail famine? Can the country supply all the steel rails needed?

Mr. M.—The revival of demand was unexpected and manufacturers were not prepared for it. Under a prohibitory duty we could overtake the demand within a year, and reduce prices, as heretofore, through home competition. Meantime, if steel rails could not be had, iron rails would be put down, very much to the benefit of our long-suffering iron trade. The buyers of steel rails had everything their own way for a long time; prices went so low that two of the eleven Bessemer works became bankrupt, and now that the tide has turned, those who have worried through deserve some consideration. All of the works are now in operation. However, the worst effects of this Treasury ruling will not fall upon the manufacturers of Bessemer steel.

R.—Who else are affected by it?

Mr. M.—The manufacturers of crucible and open-hearth cast steel. The duty of 2½ cents per pound on ingots fairly protects them, but we shall have presently something not known heretofore—importations of cast steel blooms. Parties who are always on the watch to evade duties will have steel cast in large ingots and then hammered a little, and will bring it in at 45 per cent. ad valorem. Our cast steel makers cannot stand up under that competition. While on this subject I may as well mention another decision of the Treasury Department which seems to illustrate the spirit in which our tariff laws are now administered.

R.—I shall be glad to have you do so.

Mr. M.—Steel in coils, and steel wire not less than ¼ inch in diameter, valued at 7 cents or less, are dutiable at 2½ cents per pound. Smaller wire, according to size, is charged 2½ cents per pound and upward and 20 per cent. ad valorem. There is a manufacture of steel known as wire rods, rolled for the purpose of being drawn into wire. It is coiled. The Treasury Department has decided that it is not wire, but it has also decided that it is not steel in coils, and that it is not partially manufactured wire, and admits it at 30 per cent. ad valorem, as an article not otherwise provided for. It will come in at about one-half a cent a pound, which is about one-third of the duty on iron rounds of the same size. Everybody who makes this article, everybody who buys and sells it, and everybody who consumes it knows that it is steel in coils, but the officials of the Treasury Department have decided otherwise.

R.—What effect has this decision had, if any?

Mr. M.—It is so much cheaper to import rods than to manufacture them, that large quantities have been and will continue to be ordered from abroad. It is another damaging blow to the iron and steel trade of the United States. The wire-rod business is a large industry of this country and ought to be encouraged. But the Treasury Department appears to aim at its destruction.

R.—What is it proposed to do about these decisions? Will they be carried into the courts?

Mr. M.—I do not know how this is to be done. The parties who made their mock claim before a friendly tribunal, to have their steel blooms admitted at 30 per cent. ad valorem, are very well satisfied with the decision fixing the duty at 45 per cent., and will not resort to the courts, and of course the government will not. There seems to be no remedy except an appeal to Congress, and by the time we have one matter of this sort straightened up there will be a dozen more. These decisions have taught parties who are on the watch to evade the payment of duties that all they need to do is to bring in a partially finished article under a new name, or a name not specially mentioned in the schedule of dutiable goods. It is smuggling made easy. When an article falls into an ad valorem rate of duty the mischief is not ended, as valuations are never honest when, as in most cases, the nominal importer is simply the agent of a foreign manufacturer.

R.—What would you recommend as the best course to pursue?

Mr. M.—A thorough revision of the tariff by a commission composed of experts representing all American interests and industries. Tinkering is always bad, and recent experience has shown that the Committee of Ways and Means of the House of Representatives cannot frame a general law. It has not the time, nor the requisite information, nor the means of obtaining it. Its members are constantly changing, and some of them are mere politicians, without any interest in or proper regard for the industries of the country. I think we should have such a commission to act as soon as possible, and I also favor a new administrative department composed of bureaus of agriculture, manufactures and commerce, to be called "The Department of Industry," with a Cabinet officer as its official head as Secretary of Industry. Such a department properly organized would have a beneficial influence upon legislation, and would tend to withdraw business questions out of the domain of politics and settle them upon business principles.

MR. WM. F. SHINN'S VIEWS.

St. Louis, November 1, 1879.

To the Editor of *The Iron Age*.—DEAR SIR: Regarding the recent ruling of the Treasury Department upon the subject of the duty on steel blooms, I have read Assistant Secretary French's decision as embodied in a letter to the Collector of Customs at Philadelphia, and am at a loss whether to regard as most surprising the result arrived at in the decision, or the ground upon which this decision is made.

It was unfortunate that the committee of Bessemer steel manufacturers who argued the appeal before Secretary French were not prepared for doing so. I was not originally upon the committee, but, being in Philadelphia, was requested to accompany the committee to Washington, and after a hurried consultation (time for which had to be taken after the hour for argument had arrived), I was requested by the members of the committee to present the case on behalf of the committee.

I am free to say, therefore, that the case

of the manufacturers was presented without sufficient consideration and preparation, and without having before them the previous decisions of the department.

The ground taken by the manufacturers was as follows:

1. That steel blooms were not "manufactures of steel," and therefore that they did not come under the first clause of Section 1012 of the Revised Statutes, which provides that "all manufactures of steel, or of which steel shall be a component part, not otherwise provided for, 45 per cent. ad valorem," but that steel blooms were "articles of steel partially manufactured not otherwise provided for," which the last clause of Section 1012 provides "shall pay the same rate of duty as if wholly manufactured."

Webster defines "manufactures" to be "Anything made from raw materials, by the hand, by machinery or by art, as cloths, iron utensils, shoes, cabinet ware, saddlery, and the like;" and he likewise defines the verb "manufacture": "To make or fabricate from raw materials by the hand, by art or machinery, and work into forms convenient for use, as to manufacture cloths, nails or glass." Second: "To work, as raw materials into suitable forms for use, as to manufacture wool, cotton, silk or iron." He further defines a manufacturer as "One who manufactures; a person engaged in the business of working raw materials into wares suitable for use."

Now, the whole controversy is embraced in the question whether or not a steel bloom is a "manufacture of steel," or whether it is an "article of steel partially manufactured"! It was claimed upon the one side that steel blooms were analogous, as manufactures, to pig iron; that they were articles of commerce known to the trade, made and sold as steel blooms.

We argued, upon the other hand, that pig iron is the final result of a process, and that after pig iron is obtained it is not placed in another blast furnace for the purpose of making other or smaller pig iron, but that, in its further manufacture, it goes through a process entirely different from that by which it was made; that, on the contrary, a steel bloom is an article produced by arresting at a certain stage the process of its manufacture from an ingot to a rail or to a bar, hoop, sheet or other article of manufacture; and that the only use to which a steel bloom can be put is to continue upon it the process of manufacture, and that that process is a continuation of the process by which the steel blooms were made, whether by hammering or by rolling.

We further argued that if this was not the case, that then the case is covered by Section 903 of the Revised Statutes, which provides as follows:

"There shall be levied, collected and paid on each and every non-enumerated article which bears a similitude, either in material, quantity, texture or the use to which it may be applied to any article enumerated in this title, as chargeable with duty, the same rate of duty which is levied and charged on the enumerated article which it most resembles in any of the particulars before mentioned," &c.; that if steel blooms are not "articles of steel partially manufactured" they are then articles of steel not enumerated, and that they bear a "similitude in material, quality and the use to which they may be applied" to steel ingots, because a steel ingot of the same size as a steel bloom would be of substantially the same material and quality, and would be capable of being put to precisely the same use; and that, therefore, the duty on blooms should be the same as the duty on ingots.

The importers claimed, on the other hand, that steel blooms were covered by Section 1011, which provides that "steel in any form, not otherwise provided for, 30 per cent. ad valorem."

Secretary French says, in his letter above referred to, "Steel blooms for railway bars and for locomotive tires are made of given dimensions and weight, and are intended for a special purpose, and are not suited for any other, although they might be rolled and hammered for the manufacture of smaller articles for which the quality of the metal may be suitable."

"In this view it might be held that they are railway bars or locomotive tires, partially manufactured and subject to a duty of 2 1/4 and 3 cents per pound respectively; but this duty would be prohibitory and should not be adopted unless the demands of the law imperatively require it."

"The intent of the law of 1864 regulating the duties on iron and steel, seems to have been to impose a duty of from 30 to 50 per cent. upon the coarser articles of steel, &c."

"The decisions of the department from 1867 to the present time have regarded steel blooms as subject to the duty imposed upon manufactures of steel, and upon the faith of these decisions parties have entered into large business transactions; and the department is still of the opinion that this classification is correct, and therefore adheres to such decision."

Secretary French disposes of the similitude clause by stating that a bloom is not a non-enumerated article, because the provision "for manufactures of steel and steel in any form not otherwise provided for," is a sufficient enumeration to destroy the operation of the similitude clause; but he might have ascertained the "evident intention" of the framers of the tariff from the similitude clause to be that an article not enumerated, which was practically the same thing as an enumerated article, should not be allowed to escape the duty attached to the enumerated article by reason of its non-enumeration, and such an interpretation would have been much less strained than that in which he finds the intention of the law to be to impose a duty of from 30 to 50 per cent. upon the coarser articles of steel, because upon all of those articles which are enumerated a specific duty is provided for and collected, in some cases with an ad valorem duty in addition.

The animus of this decision seems to have been—first, that the former decisions of the department upon the subject of steel blooms, affirmed as they have been by Assistant Secretary French himself, were "official utterances," and therefore "unanswerable." The frequency with which Judge French refers to the previous decisions upon this

subject strongly suggests this view of the case. Second, that it is the duty of the department to decide in all cases in favor of that decision which will produce the most revenue to the department, and that view seems to be particularly suggested in his expression, that to make steel blooms dutiable as railway bars or locomotive tires previously manufactured, "would be prohibitory, and should not be adopted unless the demands of the law imperatively require it."

Now, the whole intent and aim of the existing tariff is, as plainly as can be indicated, to furnish protection to producers of certain articles in this country, and among those articles are railway bars and locomotive tires, and it was certainly as far as possible from the intention of the framers of the tariff that articles of steel which were midway between ingots and railway bars should be allowed to come in at a duty of one-fifth that on ingots and one-third that on rails.

When we recur to the original decision on these steel blooms—that of July 27, 1867—upon which all the others appear to hang, we find the following language used, referring to so-called steel blooms imported into New York:

"An investigation of the matter shows that the articles in question were examined in store about the 12th of March last, and that the appraiser returned them as 'steel in any form not otherwise provided for,' and duty at the rate of 30 per cent. was accordingly assessed thereon. Subsequently, however, the appraiser renewed his return in the premises and classified them as 'manufactures of steel or articles of steel partially manufactured,' and the rate of duty was thereupon changed from 30 to 45 per cent. ad valorem."

"The question, therefore, is one of fact, and as the appraiser states that he is convinced that the articles are properly classified as 'manufactures of steel or articles of steel partially manufactured,' your assessment of duty thereon at 45 per cent. ad valorem was correct."

Now, this decision is most remarkable from the fact that it decides nothing. It leaves the question which was then, and is now, in controversy wholly to the appraiser, and yet upon this decision hangs all the subsequent decisions of the department upon this steel bloom question.

Now, it is particularly noticeable in this decision that it treats of "manufactures of steel" and of "articles of steel partially manufactured" as substantially the same thing, and liable to the same duty, and does not at all go to the root of the present controversy, in which, on the part of the manufacturers, claim is made that Section 1012 makes a great distinction between manufactures of steel, and an article of steel partially manufactured, and we claim that steel blooms are of the latter class, and are not of the former.

The subsequent decisions of May 8, 1868, and May 20, 1870, only confirm this original decision; and the decision of Secretary French, contained in a letter to the Collector of Customs, of Philadelphia, received September 18, 1879, simply confirms the decisions of September, 1867, and May 8, 1868.

Secretary French himself, in a letter dated September 16, 1879, to Messrs. Morton, Bliss & Co., referring to a "consignment of Bessemer steel, hammered and rolled into pieces of 4 to 5 feet long by 5 to 7 inches square," stated that "It appears from your description that the steel will be a partially manufactured article. If the appraiser shall so report, it will be subject to the same rate of duty as if wholly manufactured, viz., 45 per cent. ad valorem."

Now, how could Secretary French know that the duty upon the wholly manufactured article, into which these pieces of steel are to be made, would be subject to a duty of 45 per cent. ad valorem? If those manufactured articles were steel railway bars, they would be subject to a duty of 1 1/4 cents per pound (Section 1013, Revised Statutes); and if they were steel bars, sheets or coils, they would be subject to a duty of 2 1/4 cents per pound (Section 1015, Revised Statutes).

It will be seen, therefore, from a comparison of decisions of the department, that it has simply adhered to its original decision of 45 per cent. ad valorem on blooms of every kind; but that in that original decision the department did not definitely classify them, so that they would be legally subject to such duty, and that in subsequent decisions the department has reaffirmed the decision, but has given in some cases entirely different grounds for such reaffirmation from those given in the original decision, which must continue to be treated as an "official utterance."

But there is another fact which throws a flood of light upon this steel bloom question, and of which I was not aware until yesterday.

These pieces of steel which in this country and by the Bessemer steel manufacturers are termed "steel blooms," were, at the time the tariff was enacted, termed by the manufacturers in Great Britain, and still are so called by them, "cogged ingots," and, whether hammered or rolled, in most of the English Bessemer works and all the crucible works, both in this country and England, an ingot which has received its first work under the hammer or in the rolls is termed a "cogged ingot."

The hammer which is used for the purpose is termed a "cogging-hammer," and the mill which is used in rolling them is termed a "cogging-mill," and these very blooms were, when the tariff was framed, included in the word "ingots," as stated in section 1018 of the Revised Statutes.

The question of any party having entered into large business transactions in consequence of the decisions of the department above referred to, is not one which should have any weight in determining its decisions. If they have been misled by the department decisions into entering into transactions which they would not have entered into but for such decisions, they are clearly entitled to equitable relief, which could be given them by Congress upon the recommendation of the department, as been done heretofore; but the fact of such transactions having been entered into furnishes no adequate ground for a decision which tends to lay the whole steel-making industries of this country prostrate at the feet of the foreign steel producers.

WM. P. SHINN.

LETTER FROM MR. ERASTUS CORNING.

TROY, N. Y., November 4, 1879.

To the Editor of the Iron Age.—DEAR SIR: The recent decision of the Assistant Secretary of the Treasury is a severe blow to the steel interests of this country, and consequently favorable to the operations of our English friends. If Judge French had wanted to injure home interests, and cripple American manufacturers of steel, and strike a blow against the interests of labor, he could not have found an easier or more effective way.

I think his decision is wrong, and not in accord with a fair commercial interpretation of the statute. Blooms are not mentioned in the schedule of dutiable articles, but ingots and bars are. The bloom is simply an intermediate stage of manufacture. The ingot is first rolled into the bloom, and the bloom into the bar or billet; hence the natural inference is that, while not named in this connection, inferentially the bloom should be treated in the enumeration of "steel in ingots, blooms, bars," &c. This is its natural place, commercially and justly, taking into consideration what constitutes a bloom.

I am unable to trace any significance in placing blooms under the section of "all manufactures of steel," &c., when, in another section, is specified "steel in ingots, bars, coils," &c., and in this family the bloom is a natural, constituent member, and, being non-enumerated, should be classed and assessed as the enumerated articles of this latter section. While a bloom is not an ingot in its natural relation, it is its product; and, while it is not a bar in its commercial application, bars are produced from the bloom and the billet. Of course steel may be cast in molds of the ordinary bloom size, and is so cast, and when so cast the product is still an ingot, but in the larger commercial application they are rolled from larger ingots. It seems to me that if the different enumerations of steel had been before our legislators when making the tariff, the article bloom would have had its natural place and been included in its legitimate family connection as steel in ingots, blooms, bars, &c.

If I am right in this, it seems as if the Treasury Department had erred in not giving a proper construction to the intent, and had erroneously placed the non-enumerated article "blooms" in a family that, with the other clearly expressed section, it has no proper or significant relation to.

I am unwilling to believe the Assistant Secretary of the Treasury would intentionally construe any act to the injury and prejudice of American manufacturers and in favor and support of foreign makers, but it seems to me his construction of the statute is wrong, and will in its operation lead to just such a condition of affairs.

I should have responded to yours of the 28th ult. at an earlier day but for the pressure of other engagements.

Very truly yours,
ERASTUS CORNING, Pres't.

LETTER FROM MR. O. W. POTTER.

CHICAGO, November 1, 1879.

To the Editor of the Iron Age.—DEAR SIR: I have your letter of October 28th, in which you ask my views on the decision of Judge French, Assistant Secretary of the Treasury, in the matter of his affirming a former decision as to the duty to be paid on steel blooms, whereby the duty is practically reduced \$16 per ton from that which American manufacturers of steel believe Congress had provided in the present tariff law.

From such a standpoint, and one which I most certainly take, you might readily infer that my views as to Judge French's decision would be extreme. If he can by any possibility satisfy his own conscience that he has not made a most unjust and unwarranted decision, then Judge French has a conscience that will not do its whole duty by him, and my only hope is that the Republican administration may not have much further need of his services, or that the Almighty will see to it that he "cumbereth not the ground" much longer.

Now, sir, here is the clause on which he makes his ruling: "All manufactures of steel, or of which steel shall be a component part, not otherwise provided for, 45 per cent. ad valorem, but all articles of steel partially manufactured, or of which steel shall be a component part, not otherwise provided for, shall pay the same rate of duty as if wholly manufactured." The next clause says: "Steel railway bars shall pay 1 1/4 cents per pound duty." Another clause says: "Steel in ingots, bars, &c., valued at 7 cents per pound or less, shall pay 2 1/4 cents per pound."

Now, with this law to govern him, steel ingots paying 2 1/4 cents per pound duty, which is the first stage in the manufacture of steel rails (and, remember, it is for steel rails this steel in question has been imported, and it is on this article the decision was made), then steel rails are provided for in the tariff at 1 1/4 cents per pound, which is the last and finished stage in the manufacture of this steel ingot. The bloom in question is a stage in the manufacture of the steel rails just half way between the ingot and the finished railway bar, and has already passed to that stage in shape that the ingot must be made to assume before the railway bar can be made. Still, this man decides it is steel not partially manufactured, and may come in under 45 per cent. ad valorem.

At present prices in England for blooms, say \$25 per ton, the duty is \$11.25 a ton, while ingots are subject to 2 1/4 cents a pound, and railway bars 1 1/4 cents a pound, or \$28 per gross ton. Judge French probably satisfies himself of the justice of his decision in part on the following clause, to wit: "All manufactures of steel or of which steel shall be a component part, not otherwise provided for, shall pay 45 per cent. ad valorem." There he stops and says, here is my defense, and on this rests my decision, for nowhere can I find the word bloom, and so, of course, it is "not otherwise provided for," and 45 per cent. ad valorem is final, and yet the next word in the same clause is followed by "All articles of steel partially manufactured, or of which steel shall be a component part, not otherwise provided for, shall pay

the same rate of duty as if wholly manufactured."

Now, this bloom is not "not otherwise provided for;" it is a partially manufactured railway bar, and should pay the same rate of duty, by the above clause, as the bar itself. In every conceivable way the law has tried to prevent subterfuges and mis-constructions; but where there is a will there is a way, and it is clear Mr. French has found the way. It is now Mr. Sherman's turn. If, after his speeches in Ohio and New York, he can go back to his office and, after careful consideration of all the bearings this decision has on the future of this country, concur in the decision of Judge French, then it is the duty of the capital and labor of this country to join hands in the Presidential Campaign of 1880, and either have free trade or a tariff that neither English gold or American perfidy can disturb.

Under the present tariff law and for the purpose of a development of the manufacture of these blooms in question, American capital has been put in mines, furnaces, converting works and mills, to the amount of fully \$50,000,000. For the past five years every dollar of this money has been in jeopardy from the terrible condition of our country, and every man, woman and child, without exception, who has been employed in or around these iron mines, coal mines, furnaces and mills has suffered physically and mentally, but have borne this suffering patiently in the hope of better things. And here, within 90 days of a change for the better, and with the hope for work and pay that will provide for sickness and old age, to say nothing of the robbing of them from the most inhuman kind by savings banks failures, both labor and capital have had aimed at them a blow the force of which for the moment staggers them. But, sir, they will not fall. We have in this country now, and have had for months, foreign money, and foreign brains to direct its use, and the first fruits are before us. In their magnitude is our safety, for the reason that it is clear they mean to make a clean sweep if they do anything; and as the Republican party take to the labor of the South, let them look to it they do not enslave the white labor of the North, or they will need more than the wisdom of Blaine, the philosophy of Sherman, or the plain talk of Chandler to explain satisfactorily to this people why they did it.

The free trade and tariff questions have been foot-balls long enough. In their present attitude, they endanger every dollar in manufactures and the liberty of every employee, and to my mind this people now want some stability of government if it is to be Republican. Then let the principles that underlie the Republican party be maintained to the letter, and no recreant or ignorant official jeopardize an industry that will give employment, comfort and happiness, in 1879, to 300,000 souls, and raise out of the ground and put into manufactured articles of iron and steel the value of \$122,000,000, all of which is so much added to our wealth as a nation, as much as though it were in grain, hogs or cattle.

Our iron industry is assailed sharply by free-trade papers and Republican papers with free-trade principles, as to why we do not manufacture as cheaply as abroad, and infer that we should or die. And yet they will go into ecstasies over this free country and the American flag, and invite the whole world to come here and be happy. We have under this theory a good many people in America that were not born here. They came from countries that do this cheap work by the medium of cheap, poorly fed, degraded, despised humanity. The American government invite them here, and offer a higher civilization, and now seem ready to stultify themselves in all that they claim for this grand free republic, by placing our workmen on a level with the working classes of the countries with whom they desire free trade. There is much said just now about "Brigadiers in Congress," and we all know this is bad enough; but Benedict Arnolds in our own party, who are steadily and constantly at work undermining our own industries, deserve the contempt of every voter in this country. The "Brigadiers in Congress" are outspoken in their infamous policy; our free-trade Republicans have, as one of the strongest articles of faith in their creed, "Protection to American Industry," had better see to it that every member of their party subscribes to the whole creed or gets out, and then we shall know what Republicanism means when the name is used; for protection to American industry means that which will add to the comfort and happiness of every person living under its flag, whether he be merchant prince, farmer, or miner or maker of steel blooms.

Yours sincerely, O. W. POTTER.

MR. A. B. PARKER'S VIEWS.

Mr. A. B. Parker, when asked for an expression of his views on the subject, was strong in his condemnation of the decision, which he claimed would have a very disastrous effect upon the growing crucible and open-hearth steel industry of this country. The tariff as now interpreted will permit an extensive importation of crucible and open-hearth steel in the shape of blooms, of which considerable quantities are now about to be imported. The ruling makes no distinction between these higher grades of steel and that used for the manufacture of Bessemer steel rails, and there is every reason to expect that, as it will be very profitable to import them, our domestic manufacture will suffer seriously. The effect of the decision will be to stop a further expansion of a branch of manufacture which has been developing very rapidly in the last few years, and, if no check is put on importations, the works now engaged in the manufacture of open-hearth steel will find themselves compelled to curtail production in the melting department, and to restrict themselves to rolling steel blooms, which are available for a very great variety of articles of manufacture.

MR. A. CARNEGIE'S OPINION.

Mr. Andrew Carnegie, in conversation with a reporter of *The Iron Age*, stated that

Judge French's decision, if sustained, would, in his opinion, hurt the general steel trade seriously, while it would affect the manufacturers of steel rails less, because the policy of the latter has been to keep the price as low as possible, and they are not, therefore, in danger of being undersold. Steel blooms cannot be imported now for less than \$46, and adding to this the cost of rolling, of waste and defective rails, together with other items, making a total of \$75, approximately, it will be seen that the price of rails in this country is exceeded. Mr. Carnegie pointed out that in the case of any disputes in the quality of rails delivered, it would be a difficult matter to decide whether inferiority of the rails was due to poor quality of the blooms or lack of skill in rolling them. He would not be surprised if the Department would soon be forced by extensive frauds practiced under the provisions of the tariff, as now interpreted, to abandon the position now held. A point which he thought had escaped the attention of those interested was that, except in a few old-fashioned mills, steel blooms were not now being made in England, as ingots were rolled direct into rails without reheating.

VIEWS OF PROMINENT PITTSBURGH MANUFACTURERS.

Mr. James Park, Jr., in an interview with a representative of *The Iron Age*, speaks of Secretary French's decision in the following terms:

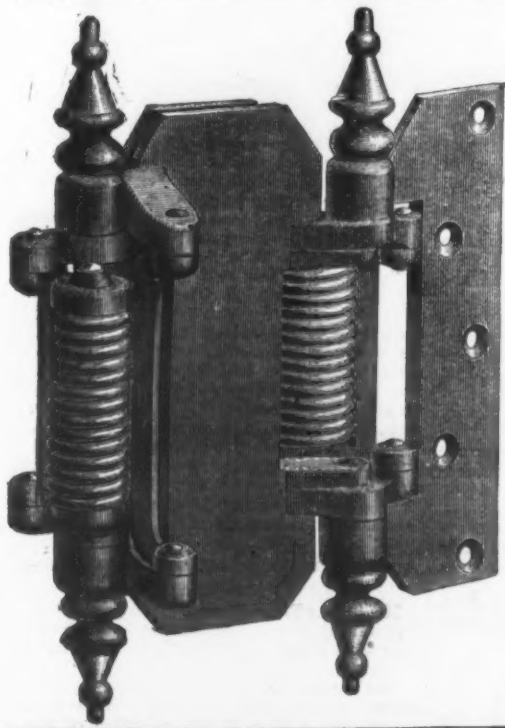
The recent decision of the Treasury Department relating to "steel blooms"—well known at the time of the adoption of the present tariff as "cogged ingots," is not at all complimentary to the intelligence of the Committee of Ways and Means, who, with the Hon. Mr. Morrill, of Maine, at its head, carefully deliberated upon and adjusted the present tariff laws. A committee composed as it was, of able men, did not adopt the present rates of duty on ingots, bars, coils, sheets, &c., and intend that these rates should be disturbed or nullified by the adoption of the paragraph quoted by the Hon. Assistant Secretary of the Treasury, which paragraph was intended to cover the thousand and one "manufactures of steel, or of which steel shall be a component part," whether finished or partially manufactured. That this paragraph refers specifically and only to manufactures of steel, no fair and candid person understanding the subject will dispute.

Q.—What are your ideas of the proper interpretation of the law as it stands?

A.—When the officials of the Treasury Department concluded to adopt the provision in schedule E, as quoted by Judge French, as that from or by which to fix the rate of duty on the so-called steel blooms, and interpret the word "articles," to mean raw or partially manufactured steel, something other than manufactures of steel, why did they overlook the words "shall pay the same rate of duty as if wholly manufactured" steel, the duty on which is clearly defined in the same schedule E? If decisions of the nature of that recently issued are to be repeated or continued, what dependence can be placed in our tariff laws? No court or Treasury official can satisfy a jury, after all the evidence is in, that the paragraph refers to anything else than "manufactures of steel." It was carefully considered and adopted, not for the purpose of disturbing the paragraph relating to "steel in ingots, bars, coils, sheets," &c., but to cover "all manufactures of steel, or of which steel shall be a component part, not otherwise provided for," fixing the same rate of duty on these partially manufactured articles as that named for "wholly manufactured." For a clearer understanding of the subject, let us look at the true definition of the word "manufactures." Webster gives us this, and every one who examines the question carefully will agree with that great authority that "manufacture" is "the operation of making wares of any kind; the process of reducing raw material to a form suitable for use by the hands, by art or machinery and the like." 2d. Anything made from raw material by the hand, by machinery or by art, as clothes, iron utensils, shoes, cabinet work, saddlery and the like." Now, allowing the steel in question to be called by its new name of "steel blooms," can the raw metal in that shape be correctly called "manufactures of steel," or can it by any fair interpretation be covered by the classification or provision quoted by the Secretary without being charged with the duty provided and fixed for "wholly manufactured steel"? The paragraph covering "all manufactures of steel" is clear and easily understood. It was considered important to embrace in the specifications applying to steel a paragraph covering the numerous articles of "manufacture," such as are composed of steel, or steel combined with other metals, some of which are specifically mentioned, but by far the greatest number of which are not referred to by name in the tariff law. After careful consideration, the paragraph quoted by Secretary French in his decision was adopted. Surely, no member of the Committee of Ways and Means ever thought the paragraph would be twisted to such an extent as to be made to apply to raw material, when it was carefully framed expressly and only to cover "manufactures of steel."

Q.—Are the consequences of Mr. French's decision likely to be seriously unfavorable to steel manufacturers?

A.—I think they will. The honorable Secretary of the Treasury, with his assistants, have made a mistake, and in doing so have deprived one important industry of the country, and those engaged in it, both principals and workmen, of that protection the tariff law intended it should enjoy. The decision is an unfortunate one, because, after many years of struggle, those now engaged in steel manufacturing, and the many who have become bankrupt in their efforts to meet foreign competition and the strong prejudice in favor of the foreign and against the home production, have brought the business to that perfection of which the country has good reason to feel proud, having secured to the consumers of steel an article fully equal, if not superior, in quality with the best made abroad, as



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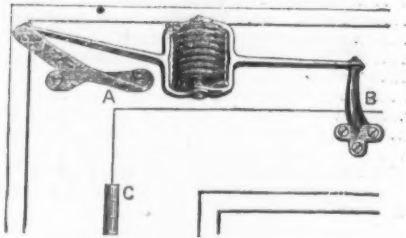
2. From this point the spring works equally well in either direction, and if the door is opened backward it is firmly retained against the wall.

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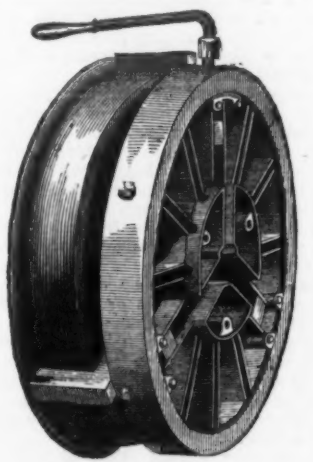
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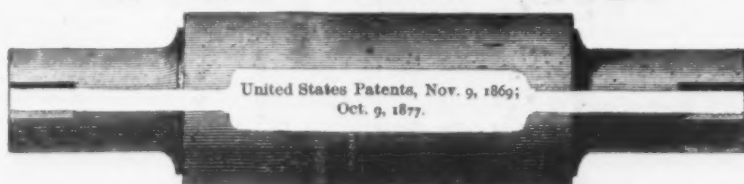
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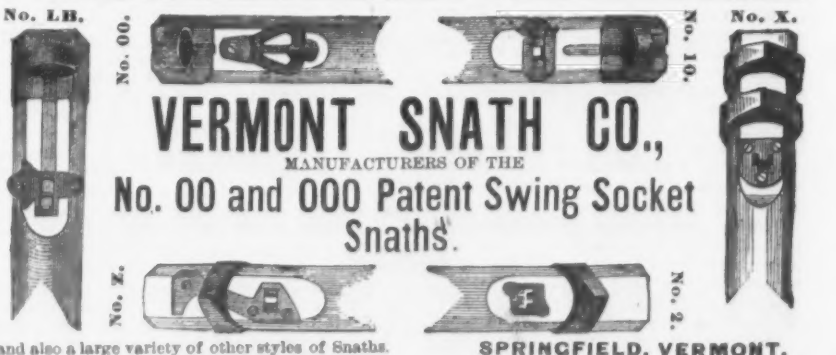
Of the many Cutting Nippers heretofore placed on the market, not one has supplied either of the two great needs long felt by all who use them, viz.: 1st. Increased power without a clumsy and expensive increase of size. 2d. That the construction of the Nipper should be such that any damage to the cutting jaw or handle, from wear or accident, could be repaired.

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These Nippers are made entirely of the very finest quality of steel, made expressly for them, the different parts being drop-forged by the Colt's Fire Arms Co. of Hartford, Conn., which is a sufficient guarantee of the excellence of the work. This Nipper gives greater cutting power than any Nipper ever made. The accidental fracture of any part does not render the tool worthless, as it can be obtained at the cost of a few cents, and replaced without trouble, every part being perfectly interchangeable. Every pair warranted.

Manufactured by THE INTERCHANGEABLE TOOL COMPANY, of New York. Manufacturers of Special Tools and Machines on the Interchangeable System.

All orders should be addressed to PETER A. FRASSE & CO. Sole Agents, 95 Fulton Street, New York.



VERMONT SNATH CO.,

MANUFACTURERS OF THE No. 00 and 000 Patent Swing Socket Snaths.

and also a large variety of other styles of Snaths. SPRINGFIELD, VERMONT.

well as furnishing it at prices considerably below what they paid when our rates of tariff were at their lowest figures.

Q.—Do you think the assumption warranted that the law has been interpreted in the interest of a large revenue from imports of blooms; and what, in your judgment, are the prospects of securing a reconsideration of the decision?

A.—That is a delicate question. It is well known and universally conceded, that honorable men holding such positions as Secretaries Sherman and French are always disposed and willing to do right, no matter who may suffer by their decisions. This is expected of them, and they will cheerfully reconsider, as they have done before, their own decisions and the decisions of their predecessors, when made to see they have made a serious mistake damaging to an important industry—one that, if allowed to have that protection the law gives it, will grow to gigantic proportions. If the Secretary of the Treasury is under the impression his decision does not disturb and nullify the tariff law, so far as it relates to steel, it will not be long before the fact—that his decision will have that effect—is brought to his attention, as the foreign manufacturers will turn all their make of steel ingots needed here into so-called steel blooms, by heating and giving them but two passes through their cogging mills or under their cogging hammers, all that is required to convert steel ingots into so-called steel blooms.

Q.—Is the term "steel bloom" warranted by general commercial usage?

A.—All English steel manufacturers and their skilled workmen denominate the so-called steel blooms "cogged ingots," and all who are familiar with the manufacture of steel should allow the original designation—that which prevailed when the tariff laws were adopted—to continue in use. The word "bloom" as applied to steel is a misnomer. No dictionary definition will warrant its use. The rolling mills in England used for reducing ingots are called "cogging mills." Who engaged in manufacturing steel has not heard of Ramsbottom's Cogging Mills, the product of which are cogged ingots, known as such, and by no other name, by every steel manufacturer and steel workman. Just think of the disturbance in the tariff classification, so far as it relates to steel, this unwelcome decision of the secretary will cause. He may not fully comprehend it, but it will not be long before all engaged in the manufacture of steel and those in their employ will not only comprehend, but severely feel it.

Q.—How will the decision affect the interests of labor in this country?

A.—It is not to be supposed that those who have invested large sums of money and credit in buildings, furnaces, machinery and stock, and who have struggled through the trying years of the panic, will give up because the mistake of the Secretary of the Treasury will transfer a large amount of trade from this to the other side of the Atlantic. They will "fight it out" if it takes all summer; but in doing so the time may come, and that, too, sooner than expected, when the skilled workmen in the steel establishments of this country will have to submit to wages corresponding with what are received by the now distressed employees of England and other foreign countries. The crucible steel manufacturers and their skilled workmen, under this unjust and unwelcome decision, will be the greatest sufferers.

Mr. T. M. Carnegie, president of the Edgar Thomson Steel Works, is of the opinion that the decision will work greater injury to the crucible steel manufacturers than to the Bessemer works. There would be little profit in importing Bessemer blooms, especially if they advance on the other side, as they undoubtedly will do, in fact have done already, while there would be a large profit in importing blooms or ingots that might be made into the highest grade of tool steel—such as if regularly admitted under the tool steel duty—would have to pay 3½ cents per pound and 10 per cent. This steel would sell at 12 cents per pound, while Bessemer rails now sell at, say, \$60 per ton, which is lower than bar iron is now selling in this country. Mr. Carnegie stated a fact that is of considerable interest. Some six or eight weeks ago it seemed to be well understood, in certain circles, that this decision would be made, and steel blooms or ingots advanced in price in the London market above the price of steel rails. This was the result of the fact that the duty on blooms was 45 per cent., while on rails it was over 100 per cent., and, therefore, the blooms could be brought in and rolled from the imported metal cheaper than the rails could be imported.

Views of Philadelphia Importers.

Below we print letters from Messrs. J. F. Bailey and Edward Samuels:

LETTER FROM J. F. BAILEY.

PHILADELPHIA, Nov. 3, 1879.

To the Editor of The Iron Age.—So much having been said about the recent decision of Judge French on Bessemer steel blooms which is calculated to deceive the reading public, I wish to say a few words in behalf of those reflected upon, and especially to note the publications in the Pittsburgh Commercial Gazette and the Pittsburgh Daily Dispatch under date of 27th instant.

The first-named paper says: "Ninety-tenths of the labor in manufacture of steel is expended in reducing the metal to the form known as blooms." This is not sustained by the cost-sheet of any Bessemer steel rail works in this country, and to confirm this perhaps some one of the Bessemer steel rail makers will show the gentlemen their cost-sheet for this grade of work, as it is not my purpose to make public the items showing the cost of making Bessemer steel ingots and blooms for making rails. This same paper, over the signature of "Protection," says: "This decision is more serious than is generally supposed. It is a direct stab at protection to American industry. Under this decision steel blooms can be imported and made into merchant bars for less than common bar iron is being sold at here." Let us see how near "Protection" is correct. First, as the decision made, confirming previous decisions of the same kind, refers only to Bessemer steel blooms for rail-

way tire and for making steel railroad bars, no honorable importer would undertake to bring blooms in for any other purpose. The present price for Bessemer steel blooms from foreign manufacturers is 130/100, f. o. b., in foreign ports; to bring them to any one of our ports and pay the 45 per cent. duty would bring the cost of blooms to about \$50 per ton. This is without profit to the importer. To reduce these blooms to rail bars would involve a cost of from \$9 to \$12 per ton. Will "Protection" kindly let some one in the iron trade know where common bar iron is sold at \$60 per ton. To reduce Bessemer bloom to bars or light rails would involve an additional cost of \$6 per ton more than stated above, as that statement refers to 56 or 60-pound rails.

"Protection" further says: "This decision will, to a great extent, prevent the American workman and manufacturers from supplying their own market. We all know that for every pound of steel imported there will be just that much less manufactured in this country." This could only be true if the production of Bessemer steel rails in this country was adequate to the demand. That the producing capacity of this country for Bessemer steel rails is not adequate to the demand, is confirmed in the fact that the production of last year was behind the real wants about 150,000 tons. This excess of orders went into iron rail mills, of which I shall speak more fully. Every ton of steel blooms brought into this country at this time will add just that much more to our productions of steel rails, will give just that much more work for the workman, to say nothing of contributing that much more to the development of our railroad interests.

The Pittsburgh Dispatch undertakes to give Mr. James Park, Jr.'s, views as authority for the public. Mr. P. says: "There is no such thing as steel blooms known to the trade," and he does not think the term is in use, as applied to steel, in Europe, but has been manufactured for the purpose of evading the duty on ingots. If I am correctly informed, Mr. P. certainly cannot make such a broad assertion on the plea of ignorance. The term "bloom" is common, both in this country and Europe, as applied by Bessemer steel manufacturers, and if Mr. P. is ignorant on this point, we would gladly refer him to the Bessemer steel works nearest to his city, where he will acquaint himself with the fact as here stated.

Mr. Park's statement that "orders going to Europe at once for large orders for blooms would have a depressing effect on home industry," cannot be sustained, for the following reasons: The lowest I have known Bessemer steel blooms for making rails to be offered at was 75/100 per ton, f. o. b. in foreign port. At this rate, at the ruling freight and insurance, these blooms would cost, delivered at mill, for converting into rails, \$32.15. To this add about \$10 to rolling mill for converting into rails and covering the 10 per cent. waste in manufacture, and your rails cost \$42 per ton. At this same date our steel rail mills were selling their productions of steel rails at \$39 to \$42 per ton, and at even these low figures two of our largest makers of steel rails showed the handsome net earning of over \$300,000. It is, moreover, known that at from \$3 to \$5 per ton higher in price, our American mills have the preference. It is also a known fact that at these prices for steel rails in this country all of our large iron rail mills, with great loss to the owners, were obliged to close up, being unable to compete with steel. It is further known that there is a monopoly here known as the Bessemer Company, Limited. This company own and control patents for making Bessemer steel, and each of the eight or nine Bessemer steel works in this country are members of this vast corporation (the Bessemer Company, Limited). This company, controlling the exclusive right to manufacture Bessemer steel under these patents, have refused to grant rights to others to manufacture Bessemer steel, and that they have been a well and strongly protected monopoly there can be no question. Moreover, the cost to manufacture Bessemer steel rail is as cheap or cheaper than iron rails could be manufactured in this country. Now, all of these things being true, and it being also true that the demand for prompt and short delivery for rails being greater than Bessemer steel rail mills can take care of, and the price of old iron rails and pig iron being so high at this time that our iron rail mills cannot take the orders for execution at less than from \$52 to \$54 per ton, it would seem that the monopoly so long maintained would be content to let the iron rail mill procure Bessemer blooms of foreign make, since they will not sell blooms for quick delivery. We know of one Bessemer works that sold to two different parties a lot of blooms. One of the parties had the most difficult time in getting what blooms were contracted for, while the other party cannot get any.

As to Mr. Park's assertion that large orders for foreign blooms would be given for import into this country at once, and have the effect of reducing the price of home manufactures, if not shut them up or cause a general reduction of workmen's wages, is another demonstration of either ignorance of facts or disposition to deceive. Bessemer steel blooms of the lowest grade made in England cannot be bought at less than \$50 per ton to-day, and at this rate it is impossible for our importers or iron rail mill owners to bring blooms into this country to manufacture into rails. These prices refer to orders of 1000 tons or more; orders smaller than this would not be entertained. It is also known that these blooms are only intended and fit to roll into railway bars, which require only the lowest grade and commonest quality of steel, and to which the late decision of Judge French is supposed to refer. Of Bessemer steel blooms there have been purchased for import into this country less than 20,000 tons, and at the present market value in England it is not likely that any more orders will go out soon. Though it has been charged against the importers, it was never the intention of importers to break down the tariff or to injure home industry, any more than it was the intention of our home Bessemer steel works to punish or break down the market of our pig iron producers by placing the orders for about

100,000 tons of foreign Bessemer pig metal; any more than it was the intention or wish of the consumers of old foreign iron rails to break our pig iron market; but to try and supply that which Bessemer steel works of this country cannot supply, namely, the demand, and that without injury to any one.

LETTER FROM EDWARD SAMUELS.

PHILADELPHIA, Nov. 3, 1879.

To the Editor of The Iron Age.—DEAR SIR: The causes that led to the importation of steel blooms and the effect of the recent decision of the Treasury Department as to the duty to be levied on them, has of late been a topic of exceeding interest, not only to the importers, but also to the manufacturers abroad, the Bessemer interests in this country, the railroad companies who had failed to purchase sufficient supplies of steel rails, and, lastly, the manufacturers of iron rails. So long ago as last May, a Philadelphia house, interested in the manufacture of iron rails, noticing the low price of steel blooms in England and the strong demand for steel rails existing in this country, determined to send an order to England for a trial lot, believing that the duty properly assessable under the present tariff was 30 per cent. ad valorem.

This lot arrived in Philadelphia during September, was assessed at 45 per cent. (from which the importers appealed) and cost at that time (low freights then prevailing) about \$35 per ton, all charges paid. At this price a moderate profit could be made by rolling into steel rails at the going rates. The Treasury Department having decided on the importers' appeal that the duty assessed (45 per cent.) was correct, large orders were at once sent abroad, and under the stimulus of these orders prices advanced there considerably. At this time one or two members of the Bessemer Association in this country became alarmed at the magnitude of the business doing in foreign blooms, and solicited the Secretary of the Treasury to reexamine the matter, representing to him that the duty properly assessable was 2½ cents per pound, basing their assertions upon their statement that a bloom assimilated to an ingot, and as the ingot was dutiable at 2½ cents, so must be the bloom—i. e., on the law of assimilation. The Secretary of the Treasury, on these representations, determined to reopen the case, and notified the importers accordingly.

This action, of course, caused a stoppage of further orders being sent abroad until the suspense of a definite decision was removed. And during this suspense prices on the other side continued to advance under the general improvement to such an extent that, when the final decision of the department was promulgated on October 24, the price had so advanced, and freights also, that the blooms could not be imported here, all charges paid, at less than \$42. So far we have given a plain statement of the case as it stands, and now, looking at the matter from a Protectionist standpoint, we propose calling the attention of our Bessemer friends to what we think was an error in judgment in their attempt to have a duty of 2½ cents per pound imposed.

In August or September, when this matter first became a subject of serious consideration for them, the condition of the order books of American Bessemer rail makers was such that they could not entertain propositions for the delivery of rails before the spring of 1880. Many of the railroad companies were in urgent need of steel rails for fall uses, and it became an absolute necessity for them to buy somewhere. They did not wish to buy iron rails, and when it was proposed to them that these blooms could be imported and rolled at the iron rail mills, the problem was solved, and they gladly availed themselves of the opportunity. And right here we would make this pertinent query: Was it better either for the American Bessemer interests or the country itself that we should import blooms, and give to our workmen here the benefit of the wages resulting from rolling these into rails, say, in all, \$10 per ton, or to import the rails and give our foreign friends this extra \$10?

The reply can only be one way—that is, if it were absolutely the fact, that either the rails or blooms must be brought from abroad, why, of course, let us have the blooms.

Now, had the duty been determined at 2½ cents on the blooms, we should have imported the rails at 1½ cents, and our mills and labor would have lost the \$10 per ton they now get for manipulating the blooms.

An effect of these importations, although hardly noticeable at present, is now plainly foreshadowed, and that is, or rather will be, the advancement of foreign makes of Bessemer pig to such figures as will enable the American makers of the same article to receive a fair compensation for their output, a condition recently destroyed by the rapid advance in general iron, quite a number of the furnaces heretofore making Bessemer pig having changed their mixture and "gone on" to "plain iron," the prices being more remunerative. That this condition was anomalous no one disputes, and that it should be rectified in the way we suggest will, we believe, soon take place. Already foreign Bessemer pigs, which sold freely in August at \$21.50, duty paid here, have advanced and readily command, for good brands \$28 @ \$30.

At the present price of blooms laid down here, duty paid, it would not be possible to expect the continuance of the business in a very large way unless the price of steel rails is materially advanced, and it rests entirely with the ability of our American steel rail makers to supply the wants of the country as to what this price shall be. If they can supply the demand they may, by keeping the price of steel rails at their present quotations, prevent further importations of steel blooms. As it is, we believe that this entire matter, so far as the quantity of importations is concerned, has been very much magnified, and will not exceed in toto 35,000 tons.

It is always an unfortunate thing in prosperous or any times to agitate tariff ques-

tions, and if our manufacturers look solely to keeping their customers supplied, we think the importers will do less harm than is imagined. Respectfully,
EDWARD SAMUELS.

A Combination Fruit Press and a Sausage Cutter, by the Enterprise Manufacturing Company.

We illustrate herewith two articles which have just been introduced by the Enterprise Manufacturing Company, of Philadelphia. The first is a combination fruit press, Figs. 1 and 2, the main features of which

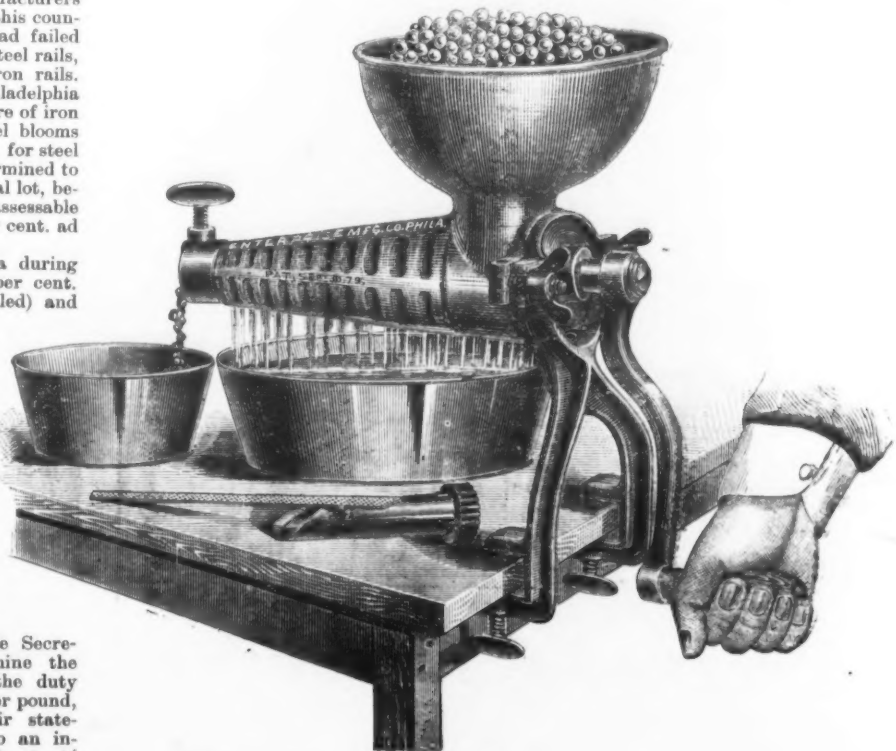


Fig. 1.

can be readily understood by examining Fig. 2, which represents the machine taken apart. It consists of a tapering cylinder, with hopper or bowl to receive the article to be operated on. In the interior of the cylinder a tapering screw fits snugly, the upper portion of the screw or legs forming the cover of the large end of the cylinder, and also serving as a bearing for the journal of the screw. On the under side of the casing is a hollow rib or channel into which the

ruined by the common iron cast-iron wheel. For steamboats, hotels, stores, &c., where casters or wheels are to be used for any purpose where noise is to be avoided and wear is an object, these goods will be found very desirable. They were originally invented to use in sections for rolls in a wool-cleansing establishment in Connecticut, and also serving as a bearing for the journal of the screw. On the under side of the casing is a hollow rib or channel into which the



Fig. 2.

strainer plate fits, thus allowing substances pressed to pass through freely. The article to be pressed is fed into the hopper, then by turning the crank the liquid or juice is expressed and passes through the strainer, while the dry mass or pulp is ejected at the outlet. This saves the trouble of handling and re-handling necessary with ordinary presses.

The manufacturers claim that this press will also serve as a sausage stuffer and lard

for wheels of various kinds. We invite attention to the advertisement of G. P. Clark, Windsor Locks, Conn., on page 32, where illustrations of casters and wheels made under his patent are shown.

A Proposed Elevated Railroad.—A company has been formed for the purpose of building an elevated railroad to run from

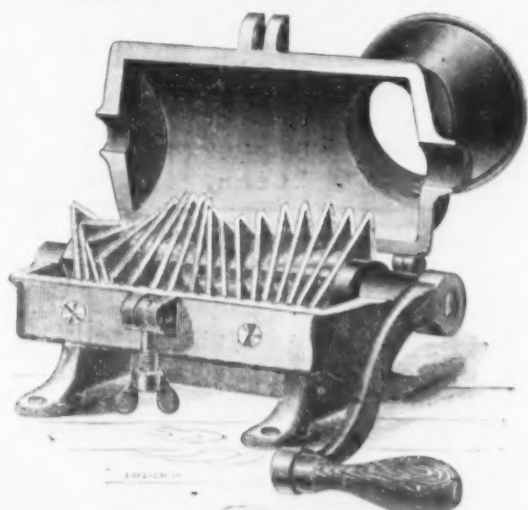


Fig. 3.

press, and will dispense with many of the slow forms of maceration and percolation in making decoctions, infusions, syrups, &c. The article is patented in the United States and abroad.

Our other illustration, Fig. 3, is of a sausage cutter. Its blades are of cast-steel, four-sided, and the edges are so ground that when one is dulled a new edge may be brought forward by taking the blade off the shaft and reversing it. The triangu-

Chestnut Hill, Philadelphia, to the vicinity of the old Navy Yard, with a branch to Frankford.

The new boiler works of Fraser & Chalmers, at Chicago, 60 x 140 feet, are completed. Also new warehouse, four-story building, 60 x 40, finished with power cranes and improved tools. The specialties of this firm are gold, silver and copper mining machinery, engines and boilers.

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And the celebrated "ELECTRIC SHEARS." Nickel Plated
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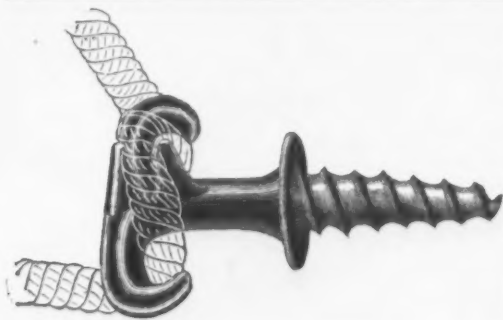


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Illustration of shears.

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MANUFACTURERS OF

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of every description.

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Illustration of a file.

Illustration of a steel.

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Manufacturers of Copper, Brass, and Iron Rivets: Corn
Iron and Sweden Iron, Leather, Carpet, Lace and Glass
Tacks: Finishing, Hungarian, Trunk, Shot and Glass
Box Nails, &c. Rivets made to Order.

NEW YORK AGENCY

George C. Grundy,

HARDWARE,

165 Greenwich Street,

Agents for the Philadelphia Star Carriage and Tire Bolts.

JAMES COMLY,

4739 Paul St., Frankford, Philadelphia Pa.,

Manufacturers of

Hardware Novelties,
Glass Cutters, &c.

CHAS. E. LITTLE, 59 Fulton St., N. Y.

1760.

Illustration of a glass ball caster.

Illustration of a glass ball caster.

Illustration of a glass ball caster.

Illustration of a glass ball caster.

Illustration of a glass ball caster.

Illustration of a glass ball caster.

Illustration of a glass ball caster.

Illustration of a glass ball caster.

Illustration of a glass ball caster.

Special Notices.

TO BRASS FOUNDERS.

A Rare Opportunity.

FOR SALE,

THE WHOLE OF THE

Patterns for Brass Goods, Cast Iron Fittings, and Steam Radiators,

LATELY BELONGING TO THE

DETROIT NOVELTY WORKS.

The Brass Goods Patterns consist of nearly a full line of Globe, Angle, Safety and Chuck Valves, Brass and Iron Bodies, Safety Back Pressure and Cross Valves, Steam Cocks, Brass and Iron; Blow-off Cocks, Steam Bibbs, Steam Stops, Union Meters, Service Cocks; Miscellaneous, Tee and Lever Handle Gauge Cocks; Compression Gauge Cocks, Water Gauges, Steam Whistles, Pet Cocks, Cylinder Cocks, Hollow Cocks; Locomotive and Flat Oil Cups; Gong Bells and full complement of Brass Fittings; Plain, Wash Tray, Bath and Hose Bibbs; Compression Plain, Hose, Wash Tray and Bath Bibbs; Compression and Plain Stops and Waste, Shower and Circulating Stops, Crooked and Straight Hough Stops, Compression and Self-closing Basin Cocks, Basin Plugs; Racking, Boiler and Globe Cocks; Sink Plugs, Boiler and Water-bath Couplings, Ale and Beer Cocks, Hose Pipe Couplings and Nozzles.

The Fittings Patterns embrace Elbows, Tees, Crosses, Return Bends, Flange Caps, Locknuts, Bushings, Flange Unions, Manholes, Flanges and Pipe Hook Plates.

The Steam Radiator Patterns are complete from 8 to 120 pipes.

A large number of other patterns are also included in the lot.

These patterns are in good condition, and form a complete outfit for a Brass Goods Establishment. They will be sold very cheap, and on easy terms, to any one who will take the whole. The first cost was not less than \$25,000. To a firm of small capital they will afford an opportunity of starting in the West, where the Detroit Novelty Works were among the largest manufacturers in their line, and their goods were well known.

For further particulars apply to the

DETROIT IRON & BRASS MFG. CO.,
Detroit, Michigan.

TUCKER BRONZE.

The trade are notified to cease the sale of iron goods bronzed by the use of oil or varnish and high heat, as described in my patents renewed Sept. 11, 1865. These patents have been repeatedly sustained by the United States Circuit Courts in Massachusetts and Connecticut, and injunctions are now in force against the use of the process as well as the sale of the product.

The Russell & Erwin Mfg. Co. is at present the only licensee under these patents.

Licenses to use the patented process will be granted on easy terms, and liberal settlements will be made for past infringements with those who apply at once, and it dwelling houses. A never failing water supply furnishes about 100 horse power. The mill property comprises also 100 acres of land, a portion of which is cleared land, and a balance timbered with Pine, Hemlock, Chestnut and other timber. All the works are in good condition, and afford facilities for successfully conducting a large and profitable business. For further information Address or apply to

HIRAM TUCKER,
62 Equitable Building, Boston, Mass.

FOR SALE OR TO RENT.—The Crescent Iron and Nail Works are located at Crescent station on the Northern Central railroad, about 10 miles from the city of Williamsport. The puddling furnaces and mills can make daily five tons of any kind of bar iron or nail plates. There are 10 nail machines capable of producing 100,000 of nails per day, also good blacksmith, chisel and cooper shops; circular saw for sawing log staves; store for employees supplies, large bank barn, wagon sheds, ice house, etc., and a dwelling house. A never failing water supply furnishes about 100 horse power. The mill property comprises also 100 acres of land, a portion of which is cleared land, and a balance timbered with Pine, Hemlock, Chestnut and other timber. All the works are in good condition, and afford facilities for successfully conducting a large and profitable business. For further information Address or apply to

R. J. C. WALKER,
Williamsport, Pa.

FOR SALE.

Lease of a valuable Iron Ore Mine, 500 miles from New York on tide water. Ore admirably adapted for Bessemer steel, and 300,000 tons in sight.

Address, MAGNETIC,
Office of The Iron Age, 83 Reade St., N. Y.

Partner Wanted,

In an established Hardware Trade in one of the smartest country towns in western New York. Best of references given and required.

Address
E. W. STOWELL, Livonia, N. Y.

AT PRIVATE SALE.

A Merchant Bar Rolling Mill, well located, with excellent railroad connections, immediate possession can be given. When in operation had a good reputation as a bar mill. Price moderate and terms easy.

For further particulars address,
CHRISTIAN PRETZ,
Allentown, Pa.

FOR SALE.

Part or whole interest in an established Hardware business in Philadelphia.

Address, with real name, BUSINESS,
Office of The Iron Age, 220 S. 4th St., Philadelphia.

ROLLING MILL FOR SALE AT A GREAT BARGAIN.

A complete Mill, well supplied with water and steam power, everything required to make merchantable iron; slightly located; will be sold at a great sacrifice. Apply to P. CASSIDY, 4 to 10 Bridge Street, Brooklyn.

FOR SALE OR TO LEASE.

Factory property at Elizabethport, N. J., comprising casting, annealing, tumbling and finishing shop; also engine and boiler and tools to make saddlery hardware or other mechanical iron goods.

P. BALEN, 84 Broad St., New York.

TO FURNACE MEN—FOR SALE OR LEASE.

Mines, convenient to shipping point on Lake Ontario. Ores run about 60 per cent. metallic iron, and make tough iron or Bessemer steel. Average cost mining and freight to Cleveland about \$2.50 per ton. Apply to BAWDEN & MACHAR, Kingston, Ontario.

AN EXPERIENCED TRAVELER

acquainted with the Hardware trade throughout the West, desires an engagement January 1st, with an Eastern manufacturer of specialties. High reference.

Address, BOX 295, Chicago.

SITUATION WANTED

as General or Assistant Manager, by a man of long experience in Rolling Mill and Nail Business. Best references for character and ability. Address MANAGER, Office of The Iron Age, 83 Reade St., New York.

A ROLLER WANTS A SITUATION

either small or bar mill. Is a good and steady workman. Can turn rolls, or would take charge of a small place where a thorough knowledge of the business would be of advantage. For further particulars address

Office of The Iron Age, 83 Reade St., New York.

Trade Report.

Office of THE IRON AGE,
WEDNESDAY EVENING, November 5, 1879.

On Saturday last a dispatch from Washington was received saying that the Treasury would buy \$10,000,000 United States 6 per cent. bonds for the Sinking Fund. On Monday the following circular arrived:

PURCHASE OF UNITED STATES BONDS FOR SINKING FUND.

THE SECRETARY OF THE TREASURY, OFFICE OF THE SECRETARY, WASHINGTON, D. C., Nov. 1, 1879.

The Secretary of the Treasury hereby gives notice that proposals will be received at the office of the Assistant Treasurer of the United States at New York, until noon of Saturday, the 8th inst., for the sale to the government of \$10,000,000 of any of the 6 per cent. interest-bearing bonds of the United States, at which time the bids will be opened and awards declared; the bonds purchased to be applied to the Sinking Fund, as provided in Section 3604 of the Revised Statutes of the United States.

Proposals will state the specific character of the bonds offered, whether registered or coupon, and under what acts they were issued, and may be for any amount not less than \$5000.

The offers must be for the sale of the bonds with accrued interest to and including the 8th instant, and each proposal must enclose a certified check for 5 per cent. of the amount of bonds offered. The checks of unsuccessful bidders will be returned as soon as the result is ascertained, and those of others on the following business day, when the bonds must be delivered, and the payment in lawful money will be made as soon as they can be duly examined. The right is reserved to reject any and all bids and waive any defects. JOHN SHERMAN, Secretary.

Section 3604 of the Revised Statutes reads as follows:

Section 3604.—The coin paid for duties on imported goods shall be set apart as a special fund and shall be applied as follows:

First.—To the payment in coin of the interest on the bonds and notes of the United States.

Second.—To the purchase and payment of 1 per centum of the entire debt of the United States, to be made within each fiscal year, which is to be set apart as a sinking fund, and the interest of which shall in like manner be applied to the purchase or payment of the public debt as the Secretary of the Treasury shall from time to time direct.

Third.—The residue to be paid into the Treasury.

From the above it will be seen that the purchase or payment of bonds for the sinking fund "within each fiscal year" is mandatory, and moreover to the extent of 1 per cent. of the entire debt of the United States.

The money market has been firm, with rates on call as high as 7% @ 1% per day. The rates of discount on prime mercantile paper are unchanged.

Government bonds were slightly lower early in the week, but closed firm by reason of the Treasury operations as announced above. Railroad mortgages and investment shares were irregular, but generally higher. We give the closing quotations of governments below.

The stock market has been irregular, but active, first declining and then recovering. The principal dealings have been in Erie, Wabash, Lake Shore, Michigan Central, Western Union, Iron Mountain, Delaware, Lackawanna and Western, New Jersey Central, Kansas and Texas and Hannibal and St. Joseph. We give below the closing quotations of active shares.

The bank return shows a decrease of \$229,100 in reserve, which now stands at \$311,800 deficiency, against \$10,502,250 excess at this time last year, and \$7,376,575 at the corresponding period in 1877. The loans show a gain this week of \$1,805,300; the specie is up \$1,992,700; the legal tenders are decreased \$1,535,800; the deposits other than United States are up \$2,744,000, and the circulation is increased \$151,800.

The following is an analysis of the bank totals of this week compared with that of last week:

	Oct. 25.	Nov. 1.	Comparisons.
Loans.....	\$269,433,300	\$271,238,600	Inc. \$1,805,300
Specie.....	27,686,600	29,679,300	Inc. 1,992,700
Legal tenders	30,151,700	28,645,900	Dec. 1,535,800
Tot. reserve.	57,834,300	58,324,500	Inc. 490,200
Deposits.....	231,668,000	234,412,000	Inc. 2,744,000
Reserve re- quired.	57,017,000	58,603,000	Inc. 586,000
Deficiency...	82,700	311,800	Inc. 229,100
Circulation.	21,448,700	21,600,500	Inc. 151,800

The foreign trade movements at the port of New York since our last issue, so far as reported, are shown in the following tables:

For the week ended November 1:

	1877.	1878.	1879.
Dry goods.....	\$854,391	\$1,377,650	\$1,436,578
General mde....	4,779,425	4,753,548	5,029,579

Total for week. \$5,633,816 \$3,135,200 \$6,466,157

Prev. reported. \$70,015,700 \$37,716,345 \$68,317,600

Since Jan. 1. \$76,568,516 \$243,787,345 \$274,795,757

Included in the imports were items of merchandise valued as follows:

	Quantity.	Value.
Brass goods.....	3	\$604
Bronzes.....	39	5,929
Chains and Anchors.	1,819	10,548
Copper.....	10,548	18,577
Cutlery.....	85	1,075
Gas fixtures.....	3	3,333
Guns.....	2,475	21,669
Hardware.....	3,333	13,015
Iron, pig, tons.....	54	1,140
Lead, pigs.....	121	1,400
Railroad bars.....	100	1,748
Iron, cotton ties.....	444	2,810
Iron, other, tons.....	4,355	7,280
Lead, pigs.....	3,325	2,700
Metal goods.....	495	1,140
Nails.....	12	1,400
Needles.....	6	2,692
Old metal.....	1,748	1,748
Platina.....	1	1,498

Plated ware.....	3	533
Percussion caps.....	13	2,064
Saddlery.....	5	388
Steel.....	13,079	1,079
Spelter.....	56,000	2,494
Silverware.....	5	171
Tin, bxs.....	15,496	81,333
Tin, bbls.....	22	1,775
Tin, 3055 slabs.....	369,575	40,398
Wire.....	314	2,346

EXPORTS OF SPECIE.

For the week ended November 1:

Total for the week. \$3,775,864

Previously reported. \$4,712,689

Total since Jan. 1, 1879. \$8,488,551

Government bonds at the close were quoted as follows:

U. S. 6's 1880 registered.....	105 1/2	105 1/2
U. S. 6's 1880 coupon.....	105 1/2	105 1/2
U. S. 6's 1881 registered.....	105 1/2	105 1/2
U. S. 6's 1881 coupon.....	105 1/2	105 1/2
U. S. 6's 1882 registered.....	105 1/2	105 1/2
U. S. 6's 1882 coupon.....	105 1/2	105 1/2
U. S. 4 1/2's 1891 registered.....	105 1/2	105 1/2
U. S. 4 1/2's 1891 coupon.....	105 1/2	105 1/2
U. S. 4's 1897 registered.....	105 1/2	105 1/2
U. S. 4's 1897 coupon.....	105 1/2	105 1/2
U. S. Currency 6's 1895.....	122	122
U. S. Currency 6's 1896.....	122 1/2	122 1/2
U. S. Currency 6's 1897.....	122 1/2	122 1/2
U. S. Currency 6's 1898.....	122 1/2	122 1/2
U. S. Currency 6's 1899.....	122 1/2	122 1/2

The following were the closing quotations of active shares:

	Bid.	Asked.
Alton and Terre Haute.....	15	16
American District Telegraph.....	35 1/2	36
Atlantic and Pacific Telegraph.....	71	72
Boston Air Line Preferred.....	50 1/2	50 3/4
Canada Southern.....	74	75
Canon.....	57 1/2	58
Col. Chicago and Ind. Cent.....	17 1/2	17 3/4
Clev., Col. and Indianapolis.....	71	72
Chicago, St. Paul and Minn.....	45 1/2	46 1/2
Chicago and Alton.....	98	99
Chesapeake and Ohio.....	111	112
" 1st Pref.....	14	14 1/2
" 2d Pref.....	16	16 1/2
Delaware, Lack. and Del.....	8 1/2	8 3/4
Delaware and Hudson Canal.....	75 1/2	76
Express-Adams.....	106	106 1/2
" American.....	57 1/2	58
" United States.....	50	51
" Wells, Fargo & Co.....	50	51
Erie.....	40 1/2	40 3/4
" Pref.....	63 1/2	64
Hannibal and St. Joseph.....	35 1/2	36
Illinois Central.....	97 1/2	98
Ind., Cincinnati and Lafayette.....	11	11 1/2
Kansas Pacific.....	82	83 1/2
Kansas and Texas.....	95	96 1/2
Lake Shore.....	90 1/2	91
Louisville and Nashville.....	76	76 1/2
Michigan Central.....	94	94 1/2
Morris and Essex.....	100 1/2	101
Mobile and Ohio.....	34 1/2	35
Nashville and Chattanooga.....	61	62
New Jersey Central.....	77	77 1/2
Northwest.....	90	90 1/2
Norfolk and Western.....	90 1/2	91
Northern Pacific.....	35 1/2	35 3/4
" Pref.....	50 1/2	50 3/4
Ohio and Mississippi.....	27 1/2	28
Pacific Mail.....	58	58 1/2
Panama.....	170	171
Quicksilver.....	13 1/2	14
Rock Island and Pacific.....	147 1/2	148
St. Louis and Iron Mountain.....	49	49 1/2
St. Louis Kansas City Northern.....	44 1/2	45
St. Louis and San Francisco.....	69 1/2	70
" Pref.....	30 1/2	31
St. Paul.....	55 1/2	56
" 1st Pref.....	75 1/2	76
Standard.....	99 1/2	100
Sutro Tunnel.....	34 1/2	35
Union Pacific.....	90 1/2	91
Wabash.....	58 1/2	59
Western Union Telegraph.....	103 1/2	104
West Central Coal.....	37 1/2	38

GENERAL HARDWARE.

Although the season has arrived when it is usual to expect a great falling off in business, we have still to report the market for all descriptions of reasonable goods in General Hardware in an active and healthy condition. The fluctuations in values during the week have not been so numerous as of late, and the market wears a more settled aspect in this respect.

The demand for foreign Hardware is reported active, and orders for importation are numerous. No changes in prices of foreign goods reported.

The demand for Nails continues light, but at the same time sufficient to prevent any accumulation of stocks. We quote rod to 60d. \$3.60 net for round lots.

The Russell & Erwin Manufacturing Co. have issued a number of new pages for insertion in Volume 5 of their Catalogue, in which they illustrate new styles of Mortise Knob Locks, Kahala Bronze Shutter Bars, Sash Lifts, Sash Fasteners and Cupboard Catches. Some handsome styles of Shelf Brackets, Mortise Bell Cranks, Polished Fire Irons and Steel Spring Tongue, Scandinavian or Jail Padlocks, and a good line of Japanned Tumbler Padlocks. They have also issued, under date of 15th ultimo, a revised discount sheet to apply to their catalogue, Volume 5, 1879, showing, in addition to the revisions in discounts, the changes in list prices which have occurred up to its date.

The Western File Company, Limited—Alfred Field & Co., general agents—have issued a circular under date of October 20, from which we extract the following:

On account of the greatly increased cost of raw material and other supplies, we hereby advise you that all previous quotations are withdrawn. We this day advance our factory rates to the following, which prices we expect the trade to maintain:

Western Files.....dia. per cent. 25

Economy....." 35

In view of the continued upward tendency of the price of everything entering into the cost of manufacturing Files, we hold the above prices subject to change without further notice, and all unfilled orders subject to ruling rates at date of shipment.

The Bridgewater Iron Co., No. 73 Pearl street (N. Stetson, Jr., Agent) have advanced the price of Bridgewater Horse Nails 10 per cent.

A further advance in price of both Manila and Sisal Rope was adopted by the Manufacturers on the 1st instant. The revised prices are as follows:

Manila Rope.....	Cts. 1/2 lb.
1 1/2 inch cir. and upwards.....	14
1 1/2 inch thread, or 3/4 inch diameter.....	14 1/2
2 and 3 thread, or 1/2 and 3/4 inch diameter.....	15
Hay Rope, 2, 3 or 4 thread.....	14
Bolt and Point Rope.....	15 1/2
Tarred Rope and Lath Yarn.....	13 1/2
Stave, Leather and Hop Twine.....	14 1/2

Sisal Rope.....	Cts. 1/2 lb.
1 1/2 inch cir. and upwards.....	12
1 1/2 inch thread, or 3/4 inch diameter.....	12 1/2
2 and 3 thread, or 1/2 and 3/4 inch diameter.....	13
Hay Rope, 2, 3 or 4 thread.....	12
Tarred Rope and Lath Yarn.....	11 1/2

The American Screw Co. have issued, under date of 1st inst., the following revised discounts and price list for "Philadelphia Pattern" and "Bay State" Tire Bolts.

PROVIDENCE, November 1, 1879.

To the Hardware Trade: In consequence of the advanced prices for iron, we have this day revised our Philadelphia Tire Bolt Price List, and changed our discount from 70 per cent. to 65 per cent.

Withdrawing and cancelling previous quotations at variance from the following, we at present quote on goods in stock:

Discount from List Prices.

	Dia. per cent.
Iron Black, Iron Tinned, Black and Carriage Rivets.....	45
Burrs.....	30
Philadelphia Pattern Tire Bolts, new Philadelphia List.....	65
Flat Head Iron Machine Screws.....	60
" Round.....	60
Flat Head Brass.....	35
" Round.....	30
Taps for Machine Screws.....	25
Stove Bolts.....	50
Sink Bolts.....	50
Pointed Nuts.....	50
Hand Nail Screws.....	40 1/2
Coach Screws (by the keg, 150 lbs.).....	55

With special additional discounts for large quantities.

Terms, cash 30 days. Freight prepaid to New York, Boston, Philadelphia and Baltimore, and on Rivets to principal points on or east of Mississippi. Except on Rivets, freight is not prepaid to other cities than above mentioned, but will be added to bills from New York City. Prices not guaranteed, and orders are accepted subject to rates ruling at time of shipment.

Soliciting your orders, which shall have our best attention, we remain yours, very respectfully,

AMERICAN SCREW COMPANY.

PHILADELPHIA PATTERN TIRE BOLTS.

Revised List, November 1, 1879.—Per 100.

respectful AMERICAN SCREW COMPANY.

PHILADELPHIA PATTERN TRUST BOLT.

Revised List, November 1, 1879.—Per 100.

Length.	3-16 In.	7-32 In.	1/2 In.	5-16 In.	3/4 In.
1 Inch.....	\$1.50	\$1.50			
1 1/2 ".....	1.50	1.50	\$1.85		
2 ".....	1.50	1.50	1.85	\$2.24	
2 1/2 ".....	1.55	1.55	1.85	2.32	
3 ".....	1.60	1.60	1.85	2.50	\$3.80
3 1/2 ".....	1.65	1.65	1.85	2.58	3.40
4 ".....	1.70	1.70	1.92	2.66	3.50
4 1/2 ".....	1.75	1.75	2.00	2.74	3.60
5 ".....	1.80	1.80	2.08		
5 1/2 ".....	1.85	1.85	2.16		3.80
6 ".....			2.30	3.06	
6 1/2 ".....				3.32	4.00
7 ".....				3.38	4.40
8 ".....					4.80

future delivery at current rates. Some are positively refusing. Merchant Bars are still quoted at 3¢, 60 days, 2¢ off for cash. Sheet, 4.5¢ for No. 24. Plate Iron, 3.8¢, with some mills declining to sell under 4¢. Skelp Iron.—The mills are nearly all full of orders for immediate delivery, but are booking orders for December at 3.5¢ and 3.6¢.

Nails.—Some firms report an increased business the past week, and we believe it is better with nearly all of them than ordinarily at this season of the year. Prices firm, but unchanged, at \$3.40, 60 days, 2¢ off for cash, and an abatement of 10¢ per keg on lots of 200 kegs and upward. It is intimated in usually well-informed circles that the card may be advanced to \$3.75 this week. At Wheeling there are a good many piled up waiting for a rise in the river to be transported by water, but the quantity actually on the market there for sale is small. The Nail trade is ordinarily dull from November until January; hence it is not expected that there will be any particular activity during the remainder of the year, but there is every prospect of a big spring trade, as a largely increased consumption is looked for next year.

Steel.—The Merchant Steel mills continue to be fully employed. Some of them have difficulty in keeping up with their orders and prices are firm, but there has been no change in the card since October 17. The production of American Steel is probably larger now than ever before in the history of the trade, as the capacity—which has been largely increased within the past year or two—is nearly all actively engaged, but there is no accumulation. On the contrary, the consumption, as already stated, still appears to be in excess of the production.

Wrought Iron Pipe.—There is no apparent abatement in the demand, particularly for the smaller sizes, and the mills, not only here, but throughout the country, have all they can do. Here it is almost impossible to place an order for immediate delivery, and we have reason to believe it is the same elsewhere, as the mills are all over-sold. There has not been such an active inquiry in the history of the trade, which may be attributed partially to the fact that it is going into more general use. It is taking the place of other Pipe because of being so much cheaper, and experience has developed that it answers the purpose fully. No change in card or discounts: Gas and Steam Pipe 25¢ off on lots of over 10,000 feet, and 20¢ for less. Boiler Tubes, 10¢ off. Oil Well Tubing, 27¢ net; do. Casing, 85¢ net.

Horse and Mule Shoes.—One hundred keg lots are still quoted at \$4 and \$5, cash, respectively. The inquiry is usually light at this season of the year.

Railway Spikes.—Are still quoted at 3 1/4¢ @ 3 1/2¢ per lb., 30 days. Manufacturers quote for a heavy demand in the spring, as it is confidently expected that next year will be fully equal, if it does not exceed, that of any former year for railway construction.

Rails.—Steel Rails are now quoted at \$60, and while the mill here is sold up for the remainder of this year, it is doubtful whether a contract for 1880 could be made under our quotation, as everything at present points to an increased cost of production. Old Iron Rails continue quiet, but few offering; most of those arriving are being placed on former contracts, and we do not hear of much inquiry; may be quoted at \$36 @ \$38; sale reported at \$36. As in Pig Iron, there is a good deal of difference in the quality of Old Rails; hence the range in prices. It is very evident that the offerings of American will be comparatively light for some time, and that consumers will have to depend upon importations. English "double-headers" are now arriving here that were bought some time ago.

Ores.—The offerings of Native Ores continue light; the leading companies, as a rule, are sold up until the close of the year, and there is not much danger of any immediate reaction in prices.

Scrap.—The market is possibly a shade easier in tone, owing largely to the lull in Pig Iron, but stocks are light and prices are still maintained. Some dealers manifested a little restlessness last week, but others equally as well posted, and whose views are entitled to fully as much consideration, have faith; they can see no good reason apparent why prices should go off. Old Car Wheels, per gross ton, may be quoted at \$32.50 @ \$35. We are cognizant of the inside figure having been offered and the outside one asked. Cast Borings, gross, \$16 @ \$17; Old Car Metal, \$26 @ \$28; No. 1 Railroad Wrought Scrap, net, \$40 @ \$42; Car Axles, net, \$45; Car Springs, \$35; Boiler Scrap, \$45; Wrought Turnings, \$25. There was a sale of Wrought Scrap yesterday at \$42, net.

Coke.—There has been an advance in this article during the past week of 20¢ @ 30¢ per ton, and we now quote at \$1.40 @ \$1.50 per ton, delivered on cars at ovens. Some sales are reported at considerably higher figures, but they must have been small and for immediate delivery, as it is not believed that buyers could be found for large lots for future delivery above our outside quotation. The advance was caused mainly by the increased cost of labor, an important matter in the manufacture of Coke, and we should not be surprised if the price would go still higher before long, as there is a large and increasing demand and very little stock in first hands, and even at the advance the margin for profit is small; and, moreover, it should be borne in mind that this is the first advance for almost a year; also, that the rise is insignificant as compared with that of Pig Iron and some other articles.

Petroleum.—The "boom" in Crude Petroleum, which has been expected by some of the trade for several weeks past, has not yet taken place, and as the season is getting advanced the prospect is not so promising, while the production will no doubt fall off from now until spring, as development is always more or less curtailed during the winter season. The consumption usually commences to recede about the close of the year, and with a visible supply unprecedented in the history of the trade, we can see no legitimate cause for an advance just now. Speculators with a large capital might succeed in establishing a temporary

advance, but, in view of what has been stated, it could scarcely be maintained. It is generally believed that this important article will command a better price next summer, as an increased consumption and decreased production is looked for.

Window Glass.—There is no apparent falling off in the demand, notwithstanding the season is pretty well advanced. With scarcely any stock in first hands, and the cost of production increased, discounts have again been reduced. Car-load lots are now quoted at 60 and 20¢ off for single, and 70¢ straight for double strength; jobbing, 60 and 10 and 5¢. There has not been such a demand at this particular time for many years.

White Lead.—Has been advanced again, and we now quote strictly pure, in ton lots, at 8 1/2¢, smaller lots, 9¢. The advance was brought about largely by the enhanced cost of linseed oil, which has been on the upward move for some time past.

CHATTANOOGA.

Office of The Iron Age, Market and 8th Sts., CHATTANOOGA, Nov. 3, 1879.

The market seems to be pretty well settled, and contrary to our prediction of last week, this week's business fully sustains our quotations. As winter approaches there is generally a slight weakening in several kinds of manufactured articles, such as Nails and building materials generally, but nothing of the kind is perceptible at present. Last week's slight depression seems to have been only a natural reaction from the former rather excited state of trade. The weather has been cold during the week and dry. Memphis is very rapidly resuming her old time activity; the railroads west of that point are all open, and business throughout the South is no more vexed by fever news and quarantine restrictions.

Pig Iron.—There is nothing new to note. The tone of the market is steady and healthy. We continue last week's prices. Coke Irons—No. 1 Foundry, \$28 @ \$33; No. 2, \$25 @ \$28; Gray Forge, \$28 @ \$30; White and Mottled, \$25. Hot-blast Charcoal—No. 1 Foundry, \$28 @ \$33; No. 2 ditto, \$25 @ \$28; Gray Forge, \$27 @ \$28. Cold-blast Charcoal—Car Wheel Metal, \$30 @ \$40.

Muck Bar.—Still none of this important article in market. Old Rails and Wrought Scrap are rather easier, but still scarce and strong, at quotations. We quote: Old Rails, \$32 @ \$35; Wrought Scrap, \$28 @ \$33; Old Car Wheels, \$25.

Ores.—Brown Hematite, 50 to 56¢; per ton, \$1.75 @ \$2.25. Red Fossiliferous, 50 to 56¢; per ton, \$1.20 @ \$1.60. The above prices for ores delivered in Chattanooga on cars or on the wharf from flat boats.

Nails.—Are strong at \$3.75. The demand is good and promises to be rather better during the winter than it has been in the fall.

Manufactured Iron.—All articles in the list maintain their prices. The mills are bare of stocks and orders are not sought after. We quote Bars at \$3.50; Railroad Spikes, \$3.75; Track Bolts, \$4.75; Trestle Bolts, \$5.50.

Coke.—We continue quotations at 10¢ per bushel for Washed Foundry; Furnace, 9¢ per ton.

Coal.—Is in full supply with a strong market. The demand improves as cold weather approaches. We quote as before: Run of mine to manufacturers at \$1.25 @ \$1.75 per ton. Household Lump, delivered, 10¢ @ 14¢.

Iron Rails.—We quote at \$48 @ \$50, and the market bare.

Steel Rails.—We quote at \$60 at mill, and no supply for transient buyers.

BOSTON.

NOVEMBER 6.—The market continues sluggish so far as American Pig Iron is concerned, and there is very little demand, except for immediate wants. Values are reported as settling downward at the shipping ports, and there have been some offers from second hands at a decline; but there is a strong undertone of feeling among sellers at this point, based upon the fact that most furnaces are sold far ahead, and there can be no marked increase of production so long as the present scarcity of coal exists. Stocks of Pig Iron in the hands of Eastern consumers may be sufficient to last them into the winter on an average; but stocks in the hands of Western consumers are light, and no lengthy cessation in the demand from that quarter can be anticipated. Our quotations are rather nominal. We quote shipping-port prices of American Pig Iron at \$29 @ \$30 for No. 1 X; \$28 @ \$29 for No. 2 X; and \$27 @ \$28 for Gray Forge. Freight to Boston are \$1.40. We quote spot lots of Pig Iron at \$23 @ \$33 for No. 1 X; and \$31 @ \$32 for No. 2 X. Scotch Pig is dull and drooping, and the stock of foreign iron on the market has been further increased this week by receipts of 125 tons per steamer, 200 tons of which, however, is Middlesbrough Iron. The price put upon this latter brand was \$27, but without buyers. We quote Scotch Iron dull and nominal at \$27 @ \$28 for Eglinton; \$28 @ \$29 for Gartsherrie and \$29 @ \$30 for Coltness. Old Rails are dull, but though lower quotations are reported at other points, holders here are firm at \$36. Manufactured Iron has been without material change since our last report, and the demand from the stores, though less animated than a short time ago, is still very good. Whatever softening in prices may have occurred in the raw material has certainly resulted in no lessening of firmness in the manufactured articles, and the mills are still running briskly, though they are now in a better position to accept new orders. Copper continues steady and unchanged at 21 1/4¢ for large lots of ingot and 22¢ @ 23¢ for smaller lots from store. Manufacturers are without material change, and we continue to quote: Copper Sheathing at 28¢; Brainers at 30¢; Bolts, 30¢; Bottoms, 33¢; American Yellow Metal Sheathing, 17¢ @ 18¢; Yellow Metal Bolts, 22¢; and English do., 13¢ in bond. Antimony is easier, and we continue to quote 20¢ @ 21¢. Lead is easier, quoting 5¢ @ 5 1/4¢ for large lots of

Pig, and the Boston store price is 5 1/4¢. Manufacturers are unchanged, quoting Lead Pipe, 7¢; Tin-lined Pipe, 15¢; Bar Lead, 7 1/2¢; Sheet Lead, 7 1/2¢; Block Tin Pipe, 40¢; all of these are subject to the usual trade or 10¢ discount. Spelter has advanced to 6 1/4¢ for car-load lots and 7¢ from store. Sheet Zinc unchanged, quoting the Boston store price 9¢ @ 9 1/2¢. Tin has continued quiet, and Straits are nominal at 24 1/2¢ @ 25¢; Banca at \$26 @ 27¢; and English L. & F. at 22 1/2¢ @ 23¢. Tin Plates continue in good inquiry at unchanged prices, quoting \$8.25 @ \$8.50 for Charcoal L. C.; \$7.50 @ \$8 for Coke L. C.; and \$7.75 for ordinary do.—Commercial Bulletin.

ST. LOUIS.

St. Louis, Mo., Nov. 1, 1879.

Please continue quotations same as last week. Business has been good, and the slight break in prices of Scotch Iron has no effect upon the firmness of makers, nor does it seem as if consumers had any fears. The fact is that consumers would sooner have metal at a good price than at the previously low figures, and the general interest seems to be to prevent reaction.

CHARCOAL HOT-BLAST.

Missouri..... \$15.00 @
Southern..... 30.00 @
Hanging Rock..... None offering.

COKE AND COAL.

Missouri..... None offering
Southern, No. 1..... 30.00 @ 33.00
Ohio River, No. 1..... 30.00 @ 33.00
Jackson County, No. 1..... 30.00 @ 33.00
Hocking Valley, No. 1..... 30.00 @ 33.00
No. 2 and Mill \$1 to \$2 per ton less.

COLD-BLAST.

Missouri..... 35.00 @ 37.00
Southern..... 38.00 @ 40.00
Ohio..... 40.00 @ 42.00

IRON ORE.

Iron Mountain..... 7.50 @ 8.00
Southwest..... 7.00 @ 7.50
Ore for fix..... 6.00 @

CINCINNATI.

Messrs. E. L. HARPER & Co., under date of Nov. 3, write as follows: The volume of trade has been very fair during the week, the demand being well distributed and general in character. The movement in Forge Iron has increased largely, a number of the mills having entered the market and placed orders for round lots at full prices. The demand for Car Wheels and Malleable grades is good.

HOT-BLAST FOUNDRY.

Hanging Rock C. C. No. 1..... \$40.00 @ 42.50
C. C. No. 2..... 38.00 @ 40.00
Southern C. C. No. 1..... 38.00 @ 40.00
No. 2..... 36.00 @ 38.00
Strong Neutral Coke..... 36.00 @ 38.00
Fannie, American Scotch..... 37.00 @ 38.00
Hocking Valley S. C..... 37.00 @ 38.00
No. 2..... 35.00 @ 36.00
Hanging Rock, S. C..... 33.00 @ 34.00
No. 2..... 33.00 @ 34.00
Open Silver Gray..... 32.00 @ 34.00

FOUR IRONS.

Hanging Rock, C. C. Gray Forge..... 38.00 @
Coke..... 35.00 @ 36.00
Cold-Short, Gray Forge..... 33.00 @ 35.00

CAR WHEEL AND MALLEABLE.

Hanging Rock..... 47.00 @ 50.00
Southern..... 43.00 @ 47.00
Lake Superior..... 48.00 @ 43.00
Salisbury..... 50.00 @ 55.00

LOUISVILLE.

Messrs. GEO. H. HULL & Co., under date of November 1, write us as follows: The market is much more active than last week, and several large sales have been made. Furnaces are all firm holders, and the few who have any surplus to sell ask high prices, which buyers do not seem willing to pay. Outside lots offered at any considerable concession find ready purchasers, and the best posted buyers are in the market for any of these lots. Nearly all sales are for cash, on which basis we now quote:

FOUNDRY IRONS.

No. 1 Hanging Rock, Charcoal..... \$39.00 @ 40.00
No. 2..... 37.00 @ 38.00
No. 3 Southern, Charcoal..... 37.00 @ 38.00
No. 4..... 36.00 @ 37.00
No. 1 Hanging Rock, Stonecoal and Coke..... 37.00 @ 38.00
No. 2 Hanging Rock, Stonecoal and Coke..... 36.00 @ 37.00
No. 3 Southern, Stonecoal and Coke..... 36.00 @ 37.00
No. 4..... 35.00 @ 36.00
American Scotch..... 36.00 @ 37.00
Silver Gray..... 35.00 @ 36.00

MILL IRONS.

No. 1 Charcoal, Cold-short and Neut'l..... 35.00 @ 36.00
No. 2 Stonecoal and Coke, Cold-short and Neut'l..... 32.00 @ 33.00
No. 3 Stonecoal and Coke, Cold-short and Neut'l..... 31.00 @ 32.00
No. 4 Missouri and Indiana Red-short and Neut'l..... 34.00 @ 35.00
White and Mottled, Cold-short and Neut'l..... 25.00 @ 26.00

CAR WHEEL AND MALLEABLE IRONS.

Hanging Rock, Cold-blast..... 45.00 @ 50.00
Alabama and Georgia, Cold-blast..... 40.00 @ 45.00
Kentucky, Cold-blast..... 40.00 @ 45.00

W. B. BELKNAP & Co., Iron and Steel merchants, Nos. 113 and 115 West Main street, under date of Nov. 1, write as follows: The all-absorbing topic among business men here now is the scarcity of coal. With winter fairly upon us, as the hard freeze of last night testifies, with but 7 inches of water at Pittsburgh, and the supply here practically exhausted, it has become a serious matter, not only with our manufacturers, whose business operations are impeded, and in some cases altogether stopped, but with housekeepers as well. The price of Pittsburgh Coal has advanced to 30¢ per bushel, and none to be had. Kentucky Coal, so generally neglected, has advanced to 24¢ per bushel, but still the supply is largely inadequate to the demand. Anthracite is being introduced to a large extent, as its cleanliness makes it especially acceptable in private houses. The difficulty lies not so much in the matter of price as in the lack of transportation facilities. The cars are simply not to be had in any direction. Bar Iron holds its own and is in moderate supply, while Sheet and Hoop are still somewhat scarce. The general impression, however, is that the time for speculation has gone by; consequently, there is not the same over-active inquiry there was a short time since. The rise has finally reached wagon woodwork. Patent wheel makers have all made a heavy advance, and the makers of rims, spokes and hubs are contending for higher prices. There are occasional offerings of goods bought on speculation or consignment lots in the hands

of agents, but they are so trifling as not to affect the general market.

BALTIMORE.

W. N. WYETH, Iron and Steel Merchant, 46 and 48 South Charles street, Baltimore, reports us the following under date of Nov. 3: Trade has ruled moderately fair for the past week. Values are firmly maintained at unchanged figures, with supplies coming forward somewhat more freely.

Ref. Bar Iron, 1 to 6 by 3/4 to 1..... \$10 3/4 @ 11 1/4
" 1 to 4 by 1/2 to 3/4..... \$10 3/4 @ 11 1/4
" 3/4 to 2, Round..... \$10 3/4 @ 11 1/4
and Square..... \$10 3/4 @ 11 1/4
Hoop Iron, 1 1/2 wide and upward..... \$10 3/4 @ 11 1/4
Band Iron, from 1 1/2 to 4 in. wide..... \$10 3/4 @ 11 1/4
Horse-shoe Iron..... \$10 3/4 @ 11 1/4
Norway Nail Rods..... \$10 3/4 @ 11 1/4
Black Diamond Cast Steel..... \$10 3/4 @ 11 1/4
Machinery Steel..... \$10 3/4 @ 11 1/4
Cast Spring Steel..... \$10 3/4 @ 11 1/4
Homogeneous Steel Plate..... \$10 3/4 @ 11 1/4
Common Horse Nails..... \$10 3/4 @ 11 1/4
R. R. Spikes, 5 1/2 x 10..... \$10 3/4 @ 11 1/4
Perkins' Horse shoes, 7 keg of 100 lbs..... \$10 3/4 @ 11 1/4
" Mule shoes..... \$10 3/4 @ 11 1/4

Putnam Horse Nails..... \$10 3/4 @ 11 1/4
Globe Horse Nails..... \$10 3/4 @ 11 1/4
Less list discount to the trade

R. C. HOFFMAN & Co., Iron and Commission Merchants, report the Pig Iron market as follows under date of Nov. 3: The Iron market continues active and prices firm, particularly for Car Wheel Irons, which are sold considerably ahead of make. Anthracite Gray Forge Irons are also scarce and firm at prices named. We quote to-day as follows:

Baltimore Charcoal Wheel Iron..... \$38.00 @ 40.00
Virginia..... 39.00 @ 41.00
Anthracite No. 1..... 39.00 @ 41.00
" No. 2..... 37.00 @ 39.00
" Mottled and White..... 35.00 @ 37.00
Va. Cold-blast Charcoal, Cold-short..... 35.00 @ 37.00
" Neutral..... 35.00 @ 37.00
Va. Warm-blast..... 35.00 @ 37.00
Old Rails..... 27.00 @ 28.00
Wrought Scrap No. 1..... 24.00 @ 25.00
Machinery..... 20.00 @ 21.00
Richmond Refined Bar Iron, Stand'd..... 23.00 @
Old Dominion Nails, per keg..... 3.50 @
Horse Shoes, Tredegar..... 3.75 @
Mule..... 4.75 @
Freights to New York, \$1.90 for 2400 lbs. by rail.

RICHMOND.

Mr. ASA SNYDER, Iron Merchant and Furnace Agent, writes as follows under date of Nov. 3: Business in small orders continues fairly active for the lateness of the season. Of the receipts of Foundry Pig Iron during the past week about 235 tons were Scotch. No change in quotations.

American Scotch Pig Iron..... \$28.00 @
Anthracite, No. 1..... \$29.00 @ 31.00
" No. 2..... 28.00 @ 30.00
" Mottled and White..... 27.00 @ 29.00
Va. Cold-blast Charcoal, Cold-short..... 25.00 @ 27.00
" Neutral..... 25.00 @ 27.00
Va. Warm-blast..... 25.00 @ 27.00
Old Rails..... 27.00 @ 28.00
Wrought Scrap No. 1..... 24.00 @ 25.00
Machinery..... 20.00 @ 21.00
Richmond Refined Bar Iron, Stand'd..... 23.00 @
Old Dominion Nails, per keg..... 3.50 @
Horse Shoes, Tredegar..... 3.75 @
Mule..... 4.75 @
Freights to New York, \$1.90 for 2400 lbs. by rail.

Our English Letter.

Review of the British Iron, Steel, Metal and Hardware Trades.

(From our Regular Correspondent.)

LONDON, ENG., Oct. 20, 1879.

THE BUSINESS SITUATION

Just now is not a little complicated in many parts of the country. In Scotland the speculative bubble has burst, and in warrant quotations there has been a serious fall. Nobody, in reality, anticipated that the inflation would last, but everybody is more or less disappointed that such has not been the case. The present holders of warrants are in a perilous condition, the majority of them being "small men" who were tempted by the apparent prosperity of the pig-iron trade to dabble in these securities, and who now find the market falling all around them, while they retain warranties for material which is not of the slightest use to them. They cannot, in many instances, pay for their purchases, so that the ensuing settling day will not improbably bring about several failures, unless the stoppages are deferred by the holders paying interest for the iron to be held over. This course the majority will no doubt favor, inasmuch as it will give the chance of another rise in prices and consequent opportunity for effecting a clearance. Advice from your side do not seem to hold out the promise of a continuance of the large demand which has prevailed during the past two months or so, hence the current depression in Scotland may possibly touch a rather low point prior to the partial revival which is sure to be its sequence. In connection with the period of excitement just passed through at Glasgow, curious stories are told. One well-known broker is reported to boast of having cleared £60,000 by transactions in warrants, and another firm are stated to have made a by no means slight profit by dint of their prescience as to what was coming from your market more than a month before the earliest orders actually reached this country. The North of England, in sympathy with its neighbor across the Tweed, is not quite so firm as regards Cleveland pig, but the relapse thereabouts has not yet been serious, owing to the improvement which has begun to manifest itself in the condition of the finished iron and shipbuilding branches. In the Midlands and in South Staffordshire raw irons are not strong, but several kinds of finished iron are in better request and dearer. Common bars have been officially advanced to the extent of 10/ a ton during the week, and sheets by from £1 to £3. 10/. In consequence of these upward movements sundry sorts of hardware are also necessarily dearer, particularly goods stamped from sheet iron and those in which the metals are the principal components. Merchants are issuing circulars informing their customers that they cannot undertake to bind themselves by existing quotations, and prophesying further early advances. These notifications, however, seem to me to savor somewhat of attempts to force the market and to bring buyers rapidly and definitely into contact with producers. It appears certain that such attempts will not be attended with any particular success at home, whatever their reception and effects may be abroad. Already we are told that sundry good foreign

orders have been received during the week, but I have not yet perused, or heard of, any account which demonstrates that the home market is responding to the earnest cultivation which is being bestowed upon it by those to whom its development is a matter of much moment. It is now a pretty well ascertained fact that our harvest is about one-third below the average in 30 counties, and about one-half below in the remaining 10 shires. In many of the northern agricultural districts the corn will not be worth cutting—indeed, it is not yet ripe, and the weather is necessarily such that no further fruition can be attained. The potatoes, too, yield very badly, probably 30 to 40 per cent. below a modest average. Under these circumstances it needs a sanguine disposition to look for any revival of trade at home at present, in the agricultural districts at all events. If the change is to be supported and to progress, its sustentation must inevitably come from beyond our own shores. Of the rocket-like ascension of our metal market proper I need not say much. The bubble is now attaining a great size, therefore I infer that the strain will not endure much longer, but that the bursting point will soon be reached. Copper already displays signs of weakness, but tin is up in the clouds, the figures of to-day being remarkable when compared with those of a fortnight ago. In the interval the rise has been nearly £20 a ton. The only beneficial effect of the rise is the revivification of the Cornish mining industries, which are filled with renewed life after a long period of torpidity. A Western paper, in alluding to the matter, says the alteration must be a dream. It is too strange to be true and to prove lasting. I am afraid that is the case. Passing on to the tin-plate industry one finds everything *cour de rose*. Everybody is busy. The men are working full time for five days weekly, and are likely to be put on six days with an advance of 7 1/2 ¢ in wages; order books are full, and selling prices are "on the up line." During the past week the amount of business actually transacted in these goods has been very large, much of it on account of purchases for American export, but also to some extent by reason of French and Australian indents. These sales have for the most part been effected at prices which are from 2/ @ 3.6 per box more money. The inflated state of the tin market and the remarkable jump in hematites, renders the tin plate producers very cautious in respect of forward deliveries, and few of them are willing to build themselves for 1880. Generally speaking, all list quotations are withdrawn at present, and each purchaser must negotiate his own terms on the best basis he can command.

THE RECIPROCARITIES

are not a little delighted by reason of the undercurrent of protectionism which they think they can detect in the speech made by Lord Salisbury at Manchester the other day. The Marquis of Salisbury is, as you know, a Cecil and a very clever man. Years ago he made his mark as a clever literary man, and he has always been accounted an acute politician as well as a trenchant speaker. Mr. Disraeli described him as a master of "gibes, flouts and sneers," but Lord Beaconsfield now holds him as his right-hand man—as the one person who will carry out the policy of imperialism in its integrity. My Lord Salisbury is, therefore, no mean personage, and his adhesion to any movement such as that which has reciprocity for its object, would of a certainty be a most marked gain to the promoters of the scheme. I cannot myself perceive any distinct promise from Lord Salisbury that he will support reciprocity, but he certainly spoke regretfully of the foolish manner in which we had in former times made our commercial treaty bargains—by giving all away we had no ground whatever for obtaining new concessions now. He expressed surprise that the United States should submit to such heavy taxation for the purpose of conserving the interests of a few producers; His idea, generally, appeared to be that we ought to have retained some of our duties until other countries had showed their readiness to make reciprocal and corresponding reductions of duties. To this extent the marquis favored reciprocity, but no further. Among members of Parliament and other speakers who are just now airing their eloquence in a variety of rural places, there seems to be a rather remarkable growth of opinion in favor of reciprocity. Lord Beaconsfield is a man of surprises. It is quite possible that he may fight the next election on lines which involve partial or complete reciprocity and an imperial fiscal union.

SCOTCH PIG IRON

has fluctuated very materially since the date of my last letter, partly owing to the collapse of the speculative movement in warrants, and partly owing to the increased production. The advice from your side cable to the *Ironmonger* of October 18 (a piece of enterprise entirely novel as regards British trade journalism, I may remark), will probably cause a still further fall. There are now, say John E. Swan and Bros., Limited, 335,112 tons in Connell's stores, an increase of 11,507 tons during the week, and 140,000 tons in excess of the stock held there a year ago. The number of operative furnaces is 89, each producing about 105 tons weekly, compared with 65 a fortnight ago and 92 this date 1878. Ballast pig is now 60/ per ton. Freight to trans-Atlantic ports have gone back to the extent of 1/ @ 2/6 per ton, and now average 12/6 @ 15/. Warrant quotations have relaxed 5/ @ 6/6, and will probably fall still lower, for the reasons indicated above, apart from the circumstance that there are at the present time nearly twice as many warrants in circulation as in ordinary times. Some trouble with the workmen in the mines and in the works is not unlikely, although their wages have already been voluntarily raised by their employers. Messrs. William Colvin & Co. reported a fluctuating and declining market on October 15. Writing on October 15 James Watson & Co. said: "There has been a further relapse in the price of pig iron this week, with a more limited business doing. On Monday the market opened at 63/6, declining to 61/6, and closing at 62 1/2 per ton. On Tuesday the price fluctuated between

62, 59/9, 60/6 and 59/ per ton, while on Wednesday the market opened at 58/3, improving to 60/ and closing at 58/ per ton. Yesterday business was transacted from 57/ to 59/9 per ton, then back to 56/7½, closing at 56/10½ per ton. To-day the tone was firmer, with business from 57/ to 59/9 per ton, closing sellers at 57/ and buyers at 56/9 per ton. The shipments last week were 20,544 tons, as compared with 10,362 tons for the corresponding week of 1878. We quote:

G. M. B. at Glasgow.....	No. 1.	No. 2.
Gartshore.....	60/	56/
Coltness.....	72/6	60/
Summerlee.....	68/6	59/
Langloan.....	70/	60/
Carnbroe.....	70/	59/
Calder, at Port Dundas.....	69/	60/
Glenarnock, at Ardrossan.....	71/	59/
Eglington.....	65/	58/6
Dalmellington.....	65/	58/6
Shotts, at Leith.....	60/6	60/

In manufactured iron an advance of about 10/ per ton has been established. Last week's shipments of manufactured iron, machinery, &c., from the Clyde were heavy and valuable. They included 500 tons of old rails valued at £1600 (or about £3. 7/ per ton) for New York.

YOUR INVENTORS

have an opportunity of distinguishing themselves. Mr. Lupton, of the Yorkshire Mining College, Leeds, declares that there is not a real safety lamp in existence. "What is wanted," he says, "is an absolutely safe safety lamp, which will give a good light. This has not yet been invented; when it has, it will be a great step forward." This statement may seem to be rather strongly phrased, but I think I may say that it is within the truth. Miners and mine owners know very well that the existing lamps are only relatively safe. Given a sufficiently dense volume of gas in a mine, and they are pretty certain to give rise to an explosion, the necessary mixture of air being always ready to hand. The Stephenson, Clammy, Protector and Davy lamps all have pretensions to infallibility, the "Geordie" probably being the best, but even it is not a lamp which can be implicitly relied upon. The Clammy has a glass tube, and gives a better light, but the glass involves the risk of breakage and consequent additional liability to dangerous contact with the foul gases of the mines. There is scarcely one of these lamps which cannot be unlocked by the miner with the point of his pick—a circumstance the statement as to which considerably astonished a Yorkshire bench of magistrates the other day. If, therefore, anybody in the United States has anything to say on the subject, or an infallible lamp to show, he should at once come forward and let the world have the benefit of his invention. There is a good deal of money awaiting the successful man. Your people are ahead in most mechanical matters—surely you can oblige us in this particular. Who speaks first?

THE ADVANCED PRICES

so far declared comprise many kinds of iron and hardware quotations. Tin plates generally are up 1/6 to 3/ per box, making them about 5/ dearer on the past six weeks. Scotch bars are 10/ up and now rule at 27 per ton. North Staffordshire bars are advanced by 10/ at £7 and £7. 10/ These include Robert Heath & Sons, Messrs. Kinnersleys, J. B. Brown's, &c. The Phosphor Bronze Company (Limited) have raised their alloys 1, 2, 3 and 4 to £115; 6 and 7 to £130, and 11 (special bearing metal) to £110—all per ton at the works. Messrs. Nerve & Son, Wolverhampton, announce an advance of 10/ per ton on all common merchant bars, rods, hoops, sheets, &c. The S. C. B. H. H. Crown and all marked iron remain as before. Messrs. G. & W. Underhill, Wolverhampton, also advance all prices 10/ per ton, with the exception of John Bradley & Co's., B. B. H. Crown, Lion, Mitre and Lord Ward's brands. Plain galvanized sheets, galvanized corrugated sheets and black corrugated sheets are advanced 20/. T. W. & J. Walker, London, &c., now quote their three crown brand of galvanized, 24 gauge, f. o. b., £16. The sheet manufacturers have generally advanced common, £1; cold-rolled, £2, and best stamping sheets, £3 per ton. Brass and copper hardware are 5 to 10 % dearer. Discounts on fry pans are reduced 2½ % and net prices are advanced 5 % all round on wrought-iron hollow-ware. Iron tubes and fittings are 2½ % higher, and cut nails maintain 10/ rise. Hematite pigs are 10/ dearer, Tredgare being 75/ and Barrow 80/, both almost prohibitive figures. Belgian iron wire in London has risen 5/, and is now quoted £12. 5/ at £12. 10/; bars and nail rods, 10/ to £6. 10/ and £6. 15/; joists and girders, £5. 5/ with a further advance probable. Powder goods are dearer to the extent of 5 % less discount, making the discount now 35 %. Shoemakers' malleable and cast hobbals are up 1d. and ½d. per 1000 respectively. Rain water spouting and such like articles are 5 to 10 % dearer. Malleable iron castings are 10 to 12½ % higher. Steel rails are now about £5. 5/ at £5. 15/ per ton, against £4 at £5 a couple of months ago. Many other kinds of goods are dearer—the fact being that every manufacturer is glad of the excuse afforded by the activity of the metal and raw iron markets to announce advances in the prices of his own productions.

WILL IT LAST?

is the question one now hears most frequently. It is not easy to answer the query. Judging from existing means of observation and the facts which transpire day by day, the inference would seem to be that the endurance of the revival is doubtful. On the other hand, there are many indications which appear to point to the opposite conclusion. Iron-trade items largely fill the odd corners of the newspapers, and the trade journals tell us abundance of stories about the restarting of furnaces, works and plant which had long been idle, and which have been revived by the upward course of selling prices. Travelers proverbially tell strange tales, and at the present juncture some of them, on behalf of iron and hardware houses, report that they have done more business during the past fortnight than for a year or two, and that even in the purely rural districts they find a disposition to buy goods on the part of ironmongers

and dealers. We also hear of the sale of 30,000 tons of iron by an English railway company at £14 per ton—company and buyers not stated—for America; of rail orders being refused, *et id hoc genus omne* at home, to say nothing of the better reports from France and Belgium. How, then, shall we longer nourish doubts and suspicions? Shall we not throw away our fears and boldly seize the cornucopia which is proffered to us? Probably here also safety lies in a medium course. We must take care to avoid being frightened into purchasing beyond our requirements, while, on the other hand, if we hold back too long, we run the risk of being left high and dry, out of the reach of those low quotations which now seem likely to be vanishing for a period. It is thus apparent that we cannot see as yet whether the spurt will last or whether it will pass away. Another week or two ought to show us a long course ahead.

SEVERAL ORDERS

on a large scale are spoken of in support of the opinions of those who believe in the continuance of the briskness which we are now witnessing in many industries. In the London building trades over £1,000,000 of orders are said to have been given out within the past ten days. From Australia and the Cape recent letters speak of very heavy undertakings in respect of railway works within those colonies. The tin mines of Cornwall & Devon are gaining ground fast, and their renewed vitality will be the means of causing a large circulation of money throughout the West of England. South Wales is busier, and the lead mining districts of Derbyshire, North Wales, North Yorkshire, Cumberland, &c., are participating in the general rise of the markets. The northern and western shipbuilders are full of hope, and some of them of orders, which they doubtless prefer to the more airy commodity. The large and medium-sized towns are going in for tramway schemes, which will create work and a good demand for rails of iron and steel, and so aid the good work of progress forward to its desired consummation. These are all "prave" words and true; let us devoutly trust in the fulfillment of the promises they hold out. Speculation and the discontent of the workmen may spoil the fair picture. Already they have done something to that end, and appear likely to operate more insidiously than heretofore.

MR. ALEXANDER MACDONALD,

who, by some truly extraordinary and inexplicable turn in the social kaleidoscope, became member of Parliament for the town of Stafford at the last general election, is again to the fore with his most pernicious nostrums. Mr. Macdonald, of whom I know nothing privately or personally, is in his public capacity neither more nor less than a blatant windbag; a "yellow spectre" who makes periodical appearances at miners' conferences for the purpose of propounding the maddest schemes ever hatched in brains totally devoid of the merest primary essentials of political economy. This time he recommends anew the policy of setting all the mines idle for a month or six weeks; urges the colliers to emigrate to the United States, where he declares there is plenty of work for them to do, and has actually succeeded in cajoling several other "leaders" of the poor miners to form, with his aid, an Emigration Union. This man's wild projects meet with almost universal condemnation at the hands of the press, but he is the sort of person who is utterly impervious to criticism; who is self-opinionated to the last degree, and who is gifted with that persistence in wrong ideas which leads to shipwreck in most instances.

FROM SHEFFIELD

there is rather better news. Iron and steel is decidedly steadier, and in all kinds of hardware, cutlery, &c., there is more business in hand. A gentleman who has just returned from Canada is said to give quite a cheering account of the trade prospects of the Dominion. He supports the Earl of Beaconsfield by saying that its soil (Manitoba) is 25 to 50 per cent. more productive than the best parts of the United States. The soil is so rich that the Sheffielders have been applied to to manufacture a special kind of crucible steel for the plow plates, which are to be used in cultivating this amazingly fertile soil. Speaking of the trade of Sheffield with the United States, a local correspondent of the *Ironmonger* says: "Messrs. Jessop & Sons have been sending out increased consignments of steel, particularly of steel plates for circular saws, from 6 inches to 7 feet in diameter. There has been a great deal said about the excellence of the American saws, but the fact is, the great bulk of the plates of which they are made go from this country. One Sheffield firm has been heard to state that they supply more plates to a well-known American house than are worked up by all the circular-saw makers in Sheffield combined. The file manufacturers in the town, who once did a good trade with that country, are beginning to take heart. The American machine-made files are now only some 15 per cent. lower than the hand-made Sheffield goods; and if that difference should be wiped off by the Americans putting up their quotations, at once there would be a demand for our files, as the preference for them has not died out. There is no country in the world where the people love good razors more than in America. Up to the present time they have not been able to produce them with any degree of success; and, according to the New York correspondent of the *Ironmonger*, the scheme of taking out a body of razor makers, in the hope of their establishing a trade there, has proved an utter failure. In the meantime, Messrs. George Wostenholme & Son are devoting special attention to that branch of their business, and with very great success. They now send to America five times the number of razors they did a dozen years ago. Their patterns number over 200—as splendid a collection as could be shown by any house in the world. They begin with the mock shell or black horn razor at 5/9 per dozen, and run up through all patterns to the chastely-ornamented ivory-handled razor at 45/ per dozen. Only two qualities of steel are used in their manufactures, not differing greatly in values, and both supplied by Messrs. Thomas Firth & Sons. The marked difference in the price of the razors is occasioned

by the quality of the material used for the handles, and in the grinding of the blade—more especially the latter. The Americans prefer small hollow-ground or Hamburg-ground razors. That style of grinding is so called because the men of Hamburg were the first to adopt it. Englishmen got hold of the idea, and now beat the inventors in the beauty and perfection of their work, thereby furnishing at least one proof that we can improve upon and teach our teachers. The leading advantages of the hollow-ground razor are, that it is easier to set, lighter to the touch, and nicer in all respects to use. So enamored are the Americans of them that few heavy straight-ground goods go there now. The art of ornamentation in gold and silver, dead and bright work, etching upon the handles, &c., as introduced by this firm into their razor trade, has been brought to great perfection, and more beautiful illustrations of it are rarely seen, even on goods especially intended for exhibition. At present Messrs. Wostenholme have little fear of any serious competition from American manufacturers. Whoever act as pioneers of the razor trade in America must expect to sink a large capital, and no one seems disposed to do that at present." Some of these statements are not without a flattering meaning to your manufacturers. It is certainly nothing to the credit of Sheffield that she should send more steel to one American saw works than she herself makes up into those articles.

STAFFORDSHIRE AND BIRMINGHAM

have grown busier since the holding of the quarterly meetings, and there has been an almost universal movement of prices. To these features of the altered state of things, however, I have called attention in other portions of this letter, so that I need not "cumber the ground" afresh here. At the ironworks there is much preparation for restarting furnaces, mills and forges, while the hardware manufacturers are distinguished by longer working hours, and a "clearing of docks," which betokens the general impression in favor of the immediate advent of those good times which have been so tardily coming.

THE METAL MARKETS

have been very active but are just now on the "down road." Tin has been especially strong. The latest official report of the London Metal Exchange says: "Copper.—Chili bars somewhat easier; g. o. b., £65. 10/ @ £66 spot, and £66. 10/ @ £67 forward; Wallaroo, £73. 10/ @ £74; Burra, £71. 10/ @ £72; English tough, £69. 10/ @ £70. 10/; best selected, £71. 10/ @ £73. 10/; strong sheets, £74 @ £76. Tin.—Lower; fine foreign, £93 @ £92; English ingots, £97. Iron.—Scotch pig, 57/ @ 58/5, cash. Lead.—English pig, £17; soft Spanish, £16. 10/ @ £16. 15/; Spelter.—£18 15/ @ £19 for ordinary brands. Quicksilver.—£3. 10/ @ £3. 15/. Antimony.—£60 forward, £65 spot.

FOREIGN.

FRANCE.

(*Moniteur des Interests Matériels.*)
PARIS, Oct. 19, 1879.—Metals.—The weather has become stormy, and will stimulate the demand for the approaching winter season. Copper.—This metal has improved materially, the price ranging between 75 and 77 francs. We quote: Chili Bars, 166.25 @ 168.75 the 100 kilos; Corocoro, 165; Ingots and Slabs, 172.50, and Best Selected, 177. At Marseilles an advance of 5 @ 10 francs has been established, but the market has been quite irregular. They quote small refined Ingots, 170; Sheet Copper, 185; Bolts, 195; Yellow Metal Sheathing, 180, and Copperdite, 193. There has been a jump of between 750 and 800 francs. We now quote: Banca, 217.25; Billiton, 215; Straits and Australian, 210, and English, 205. Marseilles has improved equally as much. They quote: Banca and French, 220; Straits, 210; and English, 205. Lead is firm at an advance of 50c. We quote the various sorts 38.50 @ 39.50, and Manufactures, 49. Quite a rise is reported from Marseilles, and great firmness. The quotation there is 36 @ 38. Antimony, 34, and Manufactures, 47 @ 48. Spelter.—There is considerable weakness and a giving way of 50c. to 1 franc the 100 kilos. We quote: Mexican, 49 francs at Havre and 45.50 here; Vieille Montagne, 50 francs; and English, 51 francs. Iron.—We cannot but repeat, so far as the general situation is concerned, our former reports—i.e., that the revival is a real one, and inspires makers with great confidence in the future. In the Haute-Marne small iron remains in request, and prices have been selected up a little, while the Loire and Rhone basins the trade and railroad companies have come forward with a moderate amount of orders. The articles most in request in those localities are Merchant Iron, Sheets and Steel. At the North the masters of forges of Valenciennes and the Sambre, at a meeting which came off at Maubeuge, have resolved to raise Merchant Iron 50c., which makes it cost 16 francs the 100 kilos. In the Meurthe and Moselle, Pig Iron has risen in response to the advance of 2.50 francs there established in Manganese Pig Iron and Scotch. Notwithstanding the carpenters' strike here, at Paris, the demand for all iron for building purposes remains as active as ever. All French and foreign trade papers are unanimously of opinion that commerce has a bright future before it everywhere, if political disturbances and war do not mar the fair prospect. The fact is that in all directions a great many public and private works will be undertaken henceforward. The position, therefore, is therefore even now a decidedly improved one, and our masters of forges will soon be rewarded for the long period of endurance they have gone through these past six years. They are now all the better prepared for a brighter future, as their machinery is in better condition than it has ever been, for most of them have bestowed much time and money on repairs and on perfecting their working power. Prices are quite firm, and iron for flooring commands 10.50 francs in smaller lots, and 18.50 for large quantities. Merchant Iron is worth 17.50 @ 18.50 at Paris. Swedish Iron advances rapidly, and certain brands in remount cannot be had any more, among others, B. O. O., for which 21 francs, deliverable at Charleville, has been offered in vain. Coal.—Great impulse has been given to the demand for Coal, and the market is buoyant and slightly looking up in consequence of colder weather.

BELGIUM

(*Revue Universelle.*)
BRUSSELS, Oct. 18, 1879.—Iron.—The market has improved in a striking manner, and, at ruling rates, orders are abundant. Old Rails are quite firm, and Sheet Iron prices are to be raised immediately by common accord. Pig Iron has risen. Our exchange has been animated. The only branch which has remained backward hitherto in this general amelioration is the machinery branch. But this is easily explained. The makers of machinery cannot upon the strength of an, as yet, not very large rise in the raw material, at once begin to advance the price of machinery in which the raw material enters, so far as cost is concerned, in a comparatively moderate proportion, labor and skill being the more important items. At Charleroi the advance in iron would have been more actively pushed, if makers had not shown too much eagerness to reduce stocks, and in Liege this has been even more the case except as regards Sheet Iron. The Huy rolling mills and the Esperance forges have had a more pressing demand than they were conveniently able to attend to, although they had raised their prices 1 franc the 100 kilos. Old Rails have risen even still more during the week, and a lot of 750 tons has been placed at 105 francs per ton. But this

cannot be used as a criterion. A rolling stock company has been established at Paris; this company will stand in need of some 10,000 freight cars, and is making inquiries to get them all made in Belgium. Two Belgian works are in treaty, at present, for large contracts abroad in another direction for the furnishing of rolling stock. The Midi Society of Charleroi is to be revived. Coal.—Coal is beginning to rise. In the Hainaut an advance of 50c has been obtained. Coke has not yet stirred, but it will soon move, if a few blast furnaces are blown in, especially to the south of Charleroi.

AUSTRIA.

(*Austrian Trade Journal.*)

VIENNA, Oct. 12, 1879.—Iron.—The course of trade has been in many respects highly satisfactory one, and although the volume of sales has in most articles not exceeded normal bounds, there has been, on the whole, a decidedly more confident tone. The tendency of prices has been as a general thing a gradually upward one. Iron is also looking up more and more, and both the trade and consumers are casting aside the reserve and hesitation hitherto observed. There has been no fresh advance in prices during the week. Merchants and manufacturers have been much exercised about the plans of a Germano-Austrian Zollverein now being put forward. They are, most of them, decidedly in favor of it, and many seem of opinion that eventually a customs league may be formed embracing even other continental nations. They seem to think that a war of tariffs cannot be carried out on the Continent in the future, and that it will be more conducive to the interests of all to stimulate continental trade on a liberal basis of reciprocity. Nations whose manufacturing capacity is about equal, or who, like Holland, are merely trading nations without industrial aspirations, may co-operate on this basis, but nations who wish to build up a manufacturing industry, and in some provinces only possess such, like Spain, may feel less inclined to join such a customs union. One thing is certain, and we have alluded to it in former reports, and that is that Austrian commercial relations are expanding considerably on the Balkan peninsula, and that Germany will, in a customs union, be equally benefited by this extension of trade facilities.

GERMANY.

(*Dorchester.*)

HAMBURG, Oct. 18, 1879.—Metals.—Although the revival has manifested itself more slowly in the iron branch in Germany, the last few days have brought about a notable advance in Pig Iron of some 6 marks per ton. In the Rhenish provinces and Westphalia an increased amount of orders has dropped in, and the works are busily engaged in filling them. The rolling mills have received extensions of orders from the German railroad lines. The metal market has been quite irregular; the sales for consumption are not large, but we presume the urgent requirements which are known to exist in various quarters will soon force many consumers into the market, and prices will then be established on a firmer basis, rates being quite nominal for the moment, in consequence of the violent fluctuations in England, Holland and France, which, in their ever-varying character, render it difficult for the German markets to follow. The Copper markets have been a good deal excited, closing more quietly. The same relates to Tin. Lead has been less influenced, but remains firm. Spelter is less active. Antimony is scarce and rising. A great impulse has been given to railroad building in Germany of late years, and there are now 16,948 miles in operation, which conveyed last year 14,658,444 passengers, accidents causing the death of but one passenger, and six were wounded. Of employees, one was killed out of every 9635, and wounded one out of every 3202.

HOLLAND.

(*Koch & Vlietboom.*)

ROTTERDAM, Oct. 21, 1879.—Tin.—The market has been under the influence of an extraordinary

excitement, speculators having pushed both Banca and Billiton from 48 guilders the 50 kilos, to 55½. The movement is purely speculative, for consumption proceeds with the utmost shyness, and does not buy except for pressing wants. The speculation has now assumed proportions which render the metal extremely dangerous to touch. As long as the movement seems still upward sellers hold back, but at every phase of weakness there is a rush to sell, and the decline then becomes all the more precipitate. The market closes at 56.50 @ 57 for Banca, and 56.50 for Billiton.

EAST INDIES.

(*Giffillan, Wood & Co.*)

SINGAPORE, Sept. 23, 1879.—Tin.—Early in the month the market was steady at \$22.50 per picul, at which considerable purchases were made for the United States. Since then there has been more inquiry, and the market advanced to \$23.50 per picul, but London having declined, our market followed and closed weak at \$22.50 per picul; but the London market is since firmer, and we close steady. Supplies are not large, and this has helped to sustain prices. The shipments during the past fortnight, from the Straits to New York, have been 295 tons, of which 155 tons went by direct steamer, and the remainder by steamers via London. Freight—There is no change. For New York the Shonan will clear in a day or two, leaving only the Ringleader on the berth. Rates are unaltered. For Boston the Winona has been chartered on secret terms. Exchange—Closes at 2/8 @ 3/9 for 6 months' sight credit drafts on London.

The grounds of Buck Brothers new chisel manufactory, at Millbury, Mass., have been tastefully laid out during the past summer, and a neat iron fence has been put up in front of the works by Messrs. H. C. Fish & Co., of Worcester. The building is finished with pressed brick and trimmed with white granite, and the roof is covered with slate, the words "Buck Brothers' Riverlin Chisel Works" being worked in, in light-colored slate. The sales of this company last month were the largest they have ever had in October.

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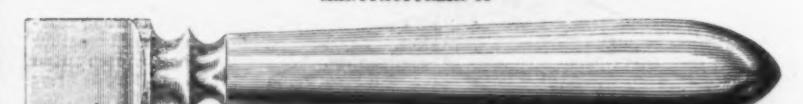
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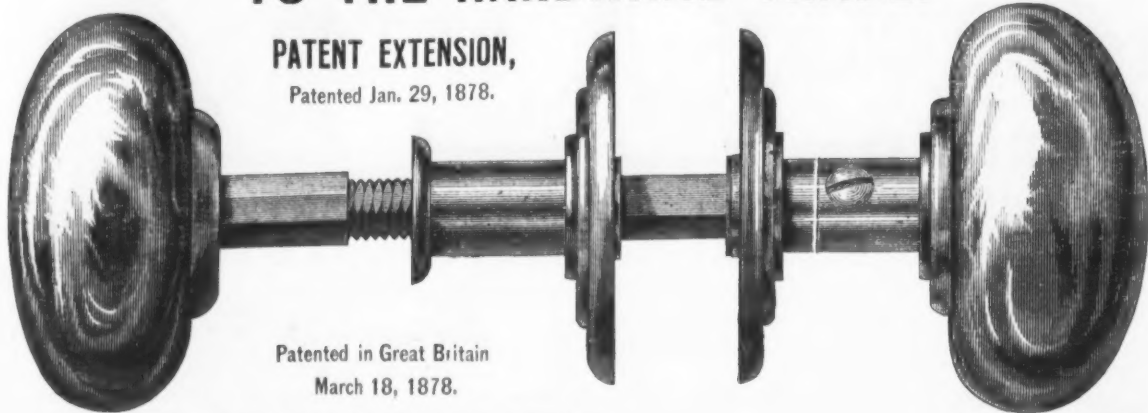
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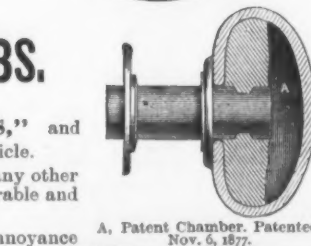
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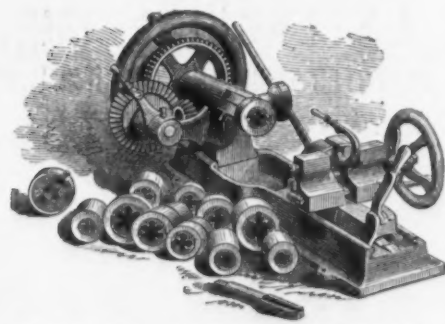
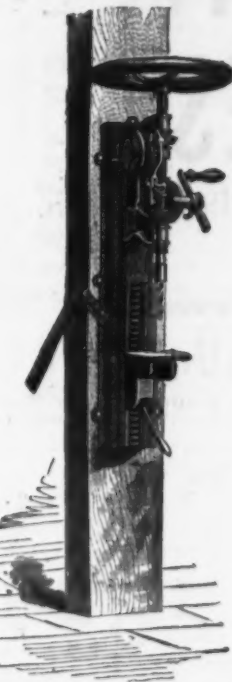
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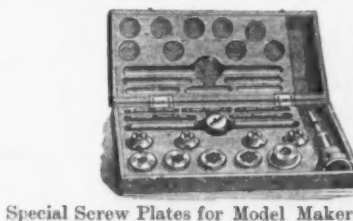
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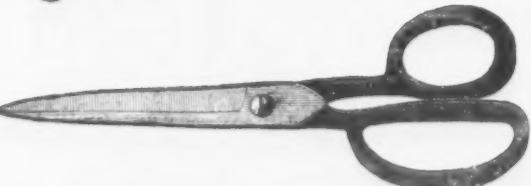
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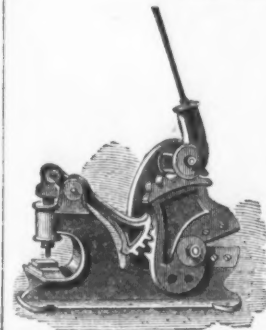
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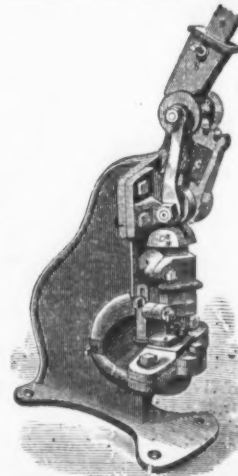
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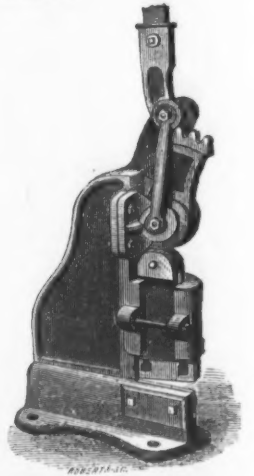
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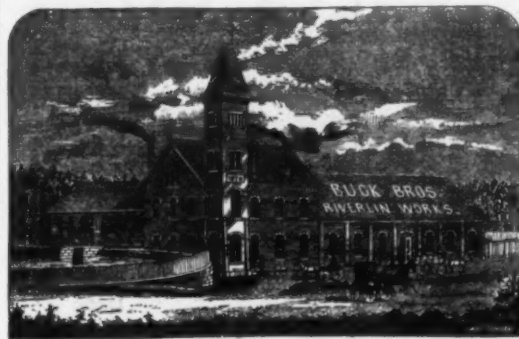
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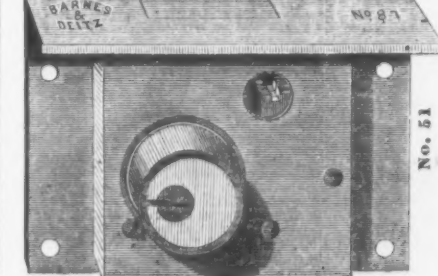
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SAWS OF ALL KINDS, FILES AND TOOLS, AND SPECIAL GOODS MADE FROM SHEET STEEL

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Branch Works, Tacony, Philadelphia.

Branch House, Randolph & Market Streets, Chicago, Ill.



POLISHED OR BLUED.

AUSABLE HORSE NAILS,

Twisted, Bent and Drawn COLD.

Hot Forged and Cold Hammered Pointed,

Are the only Nails in market that are made in imitation of the Hand Process. They have the uniformity of Machine Nails and the toughness of those hammered by hand. Our

HOT FORGED AND COLD HAMMERED POINTED NAILS

Are the Standard Nails,

and are acknowledged to be the best in the market. They are used by the best shoers in New York, Brooklyn, Philadelphia, Chicago, Saint Louis, Milwaukee, Baltimore, &c., and

GENERALLY THROUGHOUT THE UNITED STATES.

They also compete successfully in Foreign Countries with machine and hand-made Nails of their own manufacture.

AUSABLE HORSE NAIL CO.,

4 Warren St., New York.



WM. H. HASKELL & CO.,
Pawtucket, R. I.

MANUFACTURERS OF

COACH SCREWS

(With Gimlet Points),

ALL KINDS OF

Machine and Plow Bolts,
FORGED SET SCREWS,
AND
TAP BOLTS.



Bemis & Call Hardware & Tool Co.

PATENT COMBINATION WRENCH.

These Wrenches are made from the best of Wrought Iron, with Steel Head and Jaw, case-hardened throughout, and not only combine all of the superior qualities of our Cylinder or Gas Pipe Wrenches, but also all requisite combinations of a regular Nut Wrench, thus making a combination which has no equal.

For Circulars and Price List, address

BEMIS & CALL HARDWARE & TOOL CO., Springfield, Mass.

Iron and Brass Wood Screws.

We manufacture a full line of
IRON AND BRASS SCREWS.

Quality, finish and tests as to strength, guaranteed equal to any in the market.
With improved facilities and largely increased capacity for production, we hope to fill orders promptly.

Philadelphia Screw Co.,
Twelfth and Buttonwood Streets,
PHILADELPHIA.

Steam and Frost prevented on Show Windows.



REVOLVING VENTILATORS

For everything (and every size), from a hat or cap to an exhibition building. Kitchens, Laundries, &c., ventilated without draft. Durable, strong, without rivets or solder. Oiled for six months. Each one has storm cap. Retail price, also six inch diameter, \$1.00 and upwards; apparatus with which any one can cut circles in glass, 15 cents each.

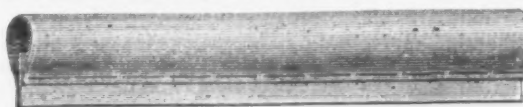
Protective Ventilators avoid drafts, exclude dust, dampness, malaria and germs of disease adopted by hospitals, schools, institutions, &c.; applied to any window or room.
Prof. A. L. Loomis, M. D., University of City of New York, writes as follows:
"From my personal experience and that of my patients who have used your Ventilator during the past six months, I am convinced that your method of removing dust, impurities and dampness from the atmosphere is the best which has as yet been proposed. By it the air in an apartment can be constantly changed without causing drafts. I would especially recommend its adoption in sick rooms, sleeping apartments, nurseries and school rooms."

Air Filters and Moisteners, placed over hot-air registers of furnaces, &c., prevent dust and supply steam filtered air. Prices and discounts to the trade sent on application.

The "Economy" Metallic Weather Strip

is perfect in every respect. Any one can adjust it, and when in position thoroughly excludes cold, dust, rain, and prevents rattling.

Put up in Coils of 50 feet. It is cheap, durable and portable.



SOLD BY HARDWARE AND HOUSE FURNISHING TRADES, AND BY

BRACHER VENTILATOR CO., No. 3 Park Row, New York.

CHAMBERLAIN & KISSAM, Agts., No. 12 Murray St., New York.

BLOCKS

A Full Line of WOOD and WROUGHT IRON,

MANUFACTURED BY

PENFIELD BLOCK WORKS, Lockport, N. Y.

Also, CARPENTERS' MALLETS, TEN-PINS and BALLS.
HENRY B. NEWHALL, Agent, 11 Warren Street, New York.

Bergen Port Spelter

MINES: Lehigh Valley, Pa. WORKS & FURNACES: Bergen Port, N. J.
The only Miners and Manufacturers of
PURE

LEHIGH SPELTER

From Lehigh Ore.

Especially adapted for

Cartridge Metal and German Silver.

Also manufacturers of

BERGEN PORT OXIDE ZINC.

Superior for LIQUID PAINT on account of its body and wearing properties.

F. OSGOOD & CO., Proprietors.

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A. B. GUNNISON,

MANUFACTURER OF

WOOD PUMPS

ERIE, PA.

ESTABLISHED - 1856

Warranted Genuine

Cucumber Pumps & Pipes. Also Pop

Pumps, Linad Pumps, &c.

The Trade Supplied by

H. B. GRIFFING,

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SCOBIE, HARRISON & PAR-

KER, 195 Liberty Street, Pitts-

burgh, Pa.

KNECHT & THOMAS,

Winchester, Ind.

—AND BY—

A. B. GUNNISON

Manufacturer, ERIE, PA.

THE "EDDY" STRAIGHTWAY VALVES.

ALSO,
FIRE HYDRANTS,
Axe, Hatchet, Powder and
Brush Machinery.

MOHAWK & HUDSON MFG. CO.,

WATERFORD, N. Y.

BENTON, FAULKNER & BIRD, 16 New Church-

street, New York Agents.

GEO. M. EDDY & CO.,

Manufacturers of

Measuring Tapes

Of Cotton, Linen & Steel.

FOR ALL PURPOSES.

351 to 363 Casson Ave. Brooklyn, N. Y.

New York Wholesale Prices, November 5, 1879.

HARDWARE.

[illegible]

"Plated Knob & Slide Plush" .. .dis 60x10

Carriage and Tire, Common.....dis 60x5
 " Philadelphia, new list, dis 60x4
 " Philada. Pattern.....dis 60x5
 " Shelton's.....dis 60x5
 H. B. & W. Carriage (old list).....dis 60x5
 Tire, Am. Screw Co.'s, Phila, new list, Nov. 1, '79, dis 60x4
 " Bay State.....dis 60x5
 Stove—American.....dis 60x5
 " R. B. & W.....dis 60x5
 Plow.....dis 60x5
 " R. B. & W.....dis 60x5
 Machine, List of July 16, '79.....dis 60x5
 Bolt Ends.....dis 60x5
Boxes......dis 60x5
 Boring Machines, Upright, Angular.....dis 60x5
 First quality, no Augers.....\$5.00 \$6.75 to \$10.00
 " with Augers.....\$5.00 10.00 to 15.00
 " 2nd, no Augers.....2.75 3.50 net.
 Phillips' with Augers.....10.00 to 15.00
Braces.—Harber's Patent.....dis 60x5
 " B. Backus.....dis 60x5
 Wilson Mfg. Co.....dis 60x5
 Spofford's Patent.....dis 60x5
 Noble's Patent.....dis 60x5
 Free's Patent Braces.....dis 60x5
 Common Ball (American).....dis 60x5
Brackets.—Shelf (Garden) List of July 8, 1890, dis 60x5
Bright Wire Goods list of July 8, 1890, dis 60x5
Bull Rings.—Union Nut Co......dis 60x5
 Sargent's.....dis 60x5
 Shotlocks.....low list dis 60x5
 Munson Beckley & Co.'s (low list).....dis 60x5
Butts.
 Wrought Brass.....dis 45x5
 Just Brass, Teblout's.....dis 45x5
 " Corbin's.....dis 60x5
 COMMON CAST, NOT DRILLED.
Fast Joint, Narrow.....dis 60x5
 " Broad.....dis 60x5
Loose Joint, Narrow.....dis 60x5
 " DRILLED AND WROUGHT.....dis 60x5
Fast Joint, Narrow.....dis 60x5
 " Broad.....dis 60x5
Loose Joint.....dis 60x5
 " Japanned.....dis 60x5
 " with Acorns.....dis 60x5
Parliament Butts......dis 60x5
Keyed Hinges......dis 60x5
Wool Pin NO ACORN.....dis 60x5
 " Acorns.....dis 60x5
 " Japanned.....dis 60x5
 Plated Pins.....dis 60x5
 WROUGHT IRON.
Fast Joint, Narrow.....dis 60x5
 " Broad.....dis 60x5
Loose Joint, Broad.....dis 60x5
 Table Butts, Back Flaps, &c.....dis 60x5
 Inside Blind, Regular.....dis 60x5
 " Tight.....dis 60x5
Wool Pin, Wrt......dis 60x5
Spring Hinges.
 American Spiral Spring Butt Co., Jap'd.....dis 25x5
 " U. S. Co.'s.....Fancy.....dis 25x5
 Gem Spiral Spring Butts, Japanned.....dis 25x5
 " Ornamental.....dis 25x5
 Ozer's Single and Double Acting.....dis 25x5
 Sabin Mfg. Co.'s Double Acting.....dis 25x5
 Union Spiral Spring, Japanned.....dis 25x5
 " Ornamental.....dis 25x5
 Union Spring Hinge Co.'s.....dis 25x5
 American Spring Hinge Co.'s.....dis 25x5
 Union Mfg. Co.....dis 25x5
 Bonamers.....dis 25x5
Blind Butts, Parker......dis 60x5
 " Palmer.....dis 37x6x5
 " Seymour.....dis 60x5
 " Shepard.....dis 60x5
 Lull & Porter.....dis 60x5
 Nelson.....dis 60x5
 " Butler.....dis 60x5
 Clark's, Nos. 1, 2, 4 and 45.....dis 60x5
 " Buffalo "Noiseless".....dis 60x5
 Sargent's No. 12.....dis 60x5
How Pins......low list dis 10x5
 Humason, Beckley & Co.'s (low list).....dis 60x5
 Sargent & Co.'s.....dis 60x5
Butchers' Cleavers.
 Humason & Beckley Mfg. Co.....dis 25x5
 " No. 1.....dis 25x5
 Beatty's.....dis 25x5
 " \$10.00 20.00 25.00 27.00 30.00 35.00 36.00
Can Openers.
 Messengers's Comet.....\$ 2.00 \$3.00, dis 25x5
 American.....\$ 2.00 \$3.00, dis 25x5
 Lyman's.....\$ 2.00 \$3.00, dis 25x5
 No. 1.....\$ 2.00 \$3.00, dis 25x5
 No. 2.....\$ 2.00 \$3.00, dis 25x5
 Eureka.....\$ 2.00 \$3.00, dis 25x5
 " No. 6, Iron Handle.....\$ 2.00 \$3.00, dis 25x5
 Star.....\$ 2.00 \$3.00, dis 25x5
 Sprague.....\$ 2.00 \$3.00, dis 25x5
Caps—Perfection No. 1.....dis 10x5
 " F. L. ground.....dis 10x5
 G. D. & B. B.....dis 10x5
 Double Water Pump.....dis 10x5
 Colt's Pistol.....dis 10x5
 Muzzle, 1-10.....dis 10x5
 " 2-10.....dis 10x5
 " 3-10.....dis 10x5
 " 4-10.....dis 10x5
 " 5-10.....dis 10x5
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 " 111-10.....dis 10x5
 " 112-10.....dis 10x5
 " 113-10.....dis 10x5
 " 114-10.....dis 10x5
 " 115-10.....dis

Cockleys, Brass.....	dis 35
Cocking.....	dis 35
Globe.....	dis 35
Welded.....	dis 35
Alc and Beer.....	dis 50
Coffee Mills.	
Walden.....	dis 25
Increase Wilson's.....	dis 25
Solser's Pat.....	\$9.50, \$10.50, dis 25
Wm. H. Mfg. Co.....	dis 25
French Steel.....	dis 20
The Swift (Lane Bros.).....	dis 25
Combined Dinner Pail and Tannin.	dis 30
Compasses, Dividers, &c.	
Compass.....	dis 60
Walden.....	dis 30
Dividers.....	dis 60
Bemis & Call Co.'s Dividers.....	dis 60
" " Wing & Inside or Outside.....	dis 50
" " Double.....	dis 50
Humson & Humson.....	dis 15
Cook's.....	dis 15
Excelsior.....	dis 50
Bradley's.....	dis 10
Coppers' Tools.	
Corkscrews—Humson & B.....	dis 35
Corn Mills and Cutters. —Bradley's.....	dis 35
Crow Bars.	
Cast Steel.....	dis 7
Curling Irons, &c.	
14, 16, 18, 20, 22, 24, 26, 28, 30, 32, 34, 36, 38, 40, 42, 44, 46, 48, 50, 52, 54, 56, 58, 60, 62, 64, 66, 68, 70, 72, 74, 76, 78, 80, 82, 84, 86, 88, 90, 92, 94, 96, 98, 100.....	dis 10
Curly Irons.....	dis 20
Curry Combs.....	dis 10
Flint and Steel.....	dis 10
Hochhaus Novelty.....	dis 20
Lawrence.....	dis 20
Wm. H. Mfg. Co.....	dis 20
Rubber.....	dis 20
Carriage Pins, Silvered Glass.	dis 15
White Enamel.....	dis 15
Cutlery.	
Motion Cutlery Co. (Table).....	dis 25
Am. Mill & Cutlery Co.....	dis 25
Wm. H. Mfg. Co.....	dis 25
W. Rogers & Son, A. A.....	dis 25
Naugatuck Cutlery Co.....	dis 25
Wm. H. Mfg. Co.....	dis 25
Do. Cellars.	
Embossed Oil.....	dis 25
Leather.....	dis 25
Door Springs.	
Torrey's Rod.....	dis 20
Gray.....	dis 20
Wm. H. Mfg. Co.....	dis 20
Gen. (Col.).....	dis 20
No. 1, Large, Japanese.....	dis 20
No. 1, Medium.....	dis 20
No. 1, Small.....	dis 20
Japanese (Col.).....	dis 20
Coppered.....	dis 20
Nickled.....	dis 20
Premium (Col.).....	dis 20
Nickled.....	dis 20
Star (Col.) For Cop'd, Nickel-Plated, &c. see list.....	dis 20
No. 1, Screen Door Size.....	dis 20
No. 6, Medium.....	dis 20
Sabin's Lever, No. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100.....	dis 20
Sabin's Rod, No. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100.....	dis 20
Philadelphia.....	dis 20
Barker's Coupled.....	dis 20
Rubber, complete.....	dis 20
Drawing Knives.	
Crosman's No. 1.....	dis 20
Nobles Mfg. Co.....	dis 20
Bradley's.....	dis 20
Wetherby Tool Co.....	dis 20
Douglas.....	dis 20
Drumsticks.	
Blacksmith's Self Feeding.....	dis 20
Drum.....	dis 20
Bartholomew's.....	dis 20
Hatchett, Merrill.....	dis 20
Wm. H. Mfg. Co.....	dis 20
Whitney's Hand Drill.....	dis 20
Whitney's Drill Stocks.....	dis 20
Drill Chucks. —Morris's Patent.....	dis 20
Adjust. each stock, draw.....	dis 20
Dugbury.	
Eye Needles.	
National.....	dis 20
Family.....	dis 20
Mill & Buckets, light, 3/4 to 1 in. (Duc's Improved).....	dis 20
Mill & Buckets, heavy, 5/8 to 1 in. (Duc's Improved).....	dis 20
Storehouse, (Duc's Patent) 1 to 17, \$1.00 to \$20.00, net.....	dis 20
Genuine Chamber—Regular Nos.....	dis 20
" " Flour and P.F.....	dis 20
Washington Mill—Regular Nos.....	dis 20
Wellington Flour.....	dis 20
" " Flour.....	dis 20
Hampton Emery Grain.....	dis 20
B. & C. of Emery Paper.....	dis 20
Canned and Tinned Ware.	
Kettles.....	dis 25
Tinned Sauce Pans.....	dis 25
Escutcheon Pins.	
Escutcheons.....	dis 25
Same discounts as Door Locks.....	dis 25
Flannels.	
Fenn's Cork Stops.....	dis 25
Star.....	dis 25
Wood and Metallic.....	dis 25
Went's Patent Key.....	dis 25
Cork Lined.....	dis 25
Enterprise (Self Measuring).....	dis 25
Felloe Plates.	
12 to 130, dis 55	
140 to 150, dis 55	
160 to 170, dis 55	

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Knives.
 American Butcher Knives.....dis 20 cts
 " Bread....." 20 cts
 " Small and Bread Knives.....dis 15 cts
 Morans Shear and Bread Knives.....dis 15 cts
 " Small and Bread Knives.....dis 15 cts
 Table and Pocket.....See Cutlery

Knobs.
 Carriage (Jap'd Cos. & Co.).....dis 50 cts
 Round, 1 1/2 inch.....dis 50 cts
 Hematite Round Knobs.....New list, dis 35 cts
 Door, Mineral.....dis 50 cts
 " Plated.....Same discounts as Door Locks
 " Por.....750 gross inch, dis 10 cts
 Furniture....." Wood Screws.....dis 20 cts
 Picture (T. & S. Mfg. Co.).....dis 45 cts
 " Hematite Picture.....dis 45 cts
 Shutter, Porcelain.....dis 35 cts

Ladders.
 Folding-Sargent's.....dis 50 cts
 Reading.....dis 25 cts
 Monroe's Patent....." 20 cts

Lampers.
 Tubular.....No. 6, \$8.50; No. 1, \$10.15 net
 Hurricane.....No. 5, " 11.75, dis 10 cts
 Peeries.....No. 5, " 11.75, dis 10 cts
 Gray's Patent....." 11.75, dis 10 cts
 Atlas....." 11.75, dis 10 cts
 Yankee....." 11.75, dis 10 cts
 " Small, \$7.50; Med., \$9.00; Large, \$12.00, discounts 10 cts
 Police....." 11.75, dis 10 cts
 Convex Reflector....." 11.75, dis 10 cts

Lemon Squeezers.
 Poole's Lemon Squeezer....." 10 cts
 Eureka, Tinned....." 10 cts
 Dunlap's Improved....." 10 cts
 Hanson's Lemon Squeezer....." 10 cts
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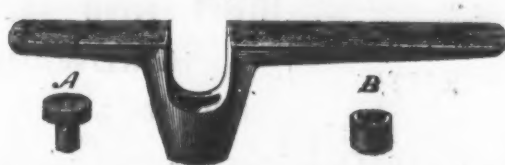
For Double Straight Reach. 11-16 Iron 20 in. Diameter kept in stock.

No. 12, BREWSTER FIFTH WHEEL.



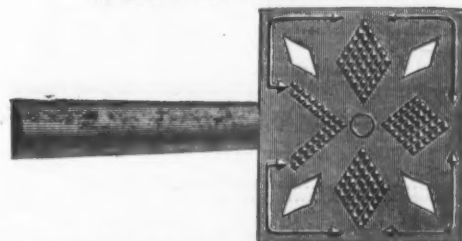
For Double Drop Reach with Straight Lugs. Can be furnished with Bent Lugs if preferred. 11-16 Iron 12 in. diameter kept in stock.

WILCOX'S PATENT FIFTH WHEEL ANTI-RATTLER.



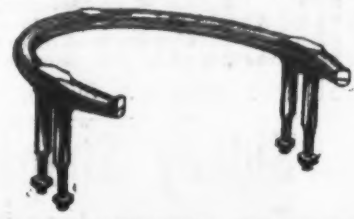
A represents rivet, and B rubber, which placed in recess makes a perfect Anti-Rattler. For $\frac{3}{4}$ and $\frac{1}{2}$ Fifth Wheels.

OPEN DIAMOND STEP.



Forged from best Norway Iron. Three sizes: No. 1, $3\frac{1}{2} \times 3\frac{1}{2}$; No. 2, $4\frac{1}{2} \times 4\frac{1}{2}$; No. 3, $5\frac{1}{2} \times 5\frac{1}{2}$ in. Made under patent of April 1, 1876. Also made without open diamonds in corners.

No. 14, CINCINNATI WHEEL.



The best cheap Wheel made. Made from $\frac{3}{4}$ and $\frac{1}{2}$ in. Iron 12 and 14 in. diameter. With No. 4, or Ohio bottoms, same price.

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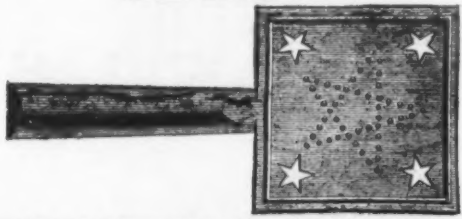
Differs from No. 14 in having two Extra Squares for Double Reach. Same sizes. With No. 4 or Ohio bottoms same price.

IMPROVED BODY LOOP.



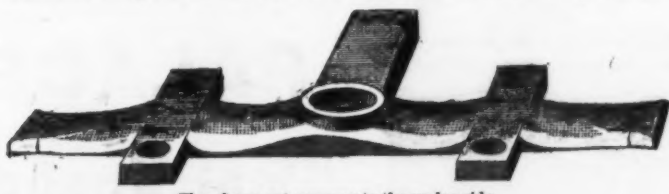
Patented May 16, 1869. Five sizes: for $\frac{3}{4}$, $\frac{1}{2}$, 1, $1\frac{1}{2}$ and $2\frac{1}{2}$ in. spring bar. $\frac{3}{4}$ in. has $\frac{1}{4}$ in. $\frac{1}{2}$ and 1 in. have 5-16 in., and $1\frac{1}{2}$ and $2\frac{1}{2}$ in. have $\frac{1}{4}$ in. hole for bolt. Made from best Norway Iron. Two doz. in a box.

OPEN STAR STEP.



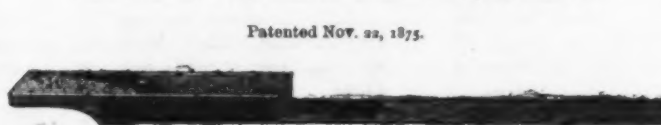
Forged from best Norway Iron. Three sizes: No. 1, $3\frac{1}{2} \times 3\frac{1}{2}$; No. 2, $4\frac{1}{2} \times 4\frac{1}{2}$; No. 3, $5\frac{1}{2} \times 5\frac{1}{2}$ in. Made under patent of April 1, 1876. Also made without open stars in corners.

DERBY REACH OR PERCH PLATE.—For Single Reach.



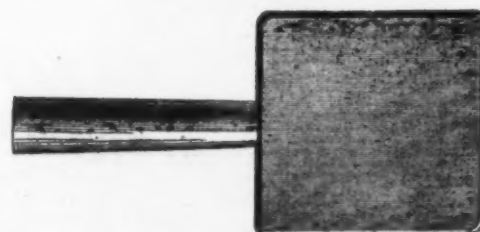
The above cut represents the under side. This is forged from a solid bar of best Norway Iron, and the ends are left long enough to answer for any diameter of Fifth Wheel. The center hole is made to accurately fit king bolt. Also made for Double Reach.

MOSIER'S PATENT REACH SOCKET.



Patented Nov. 22, 1875. Size for $\frac{3}{4}$ in. Reach now ready. Used on Carriages and Wagons with Double Reaches. Size for $\frac{1}{2}$ in. Reach will soon be ready.

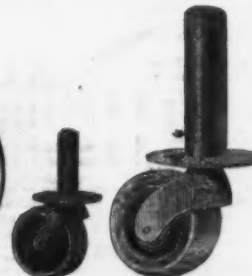
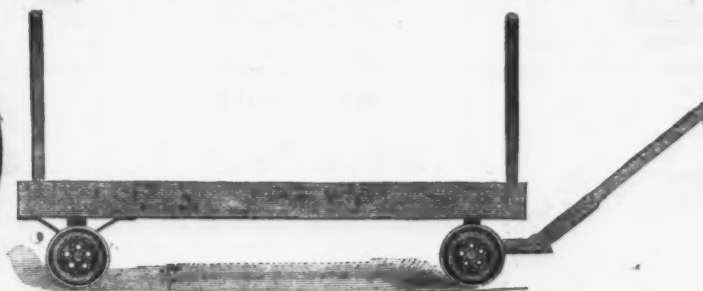
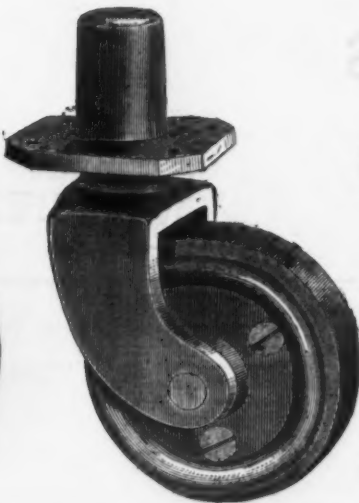
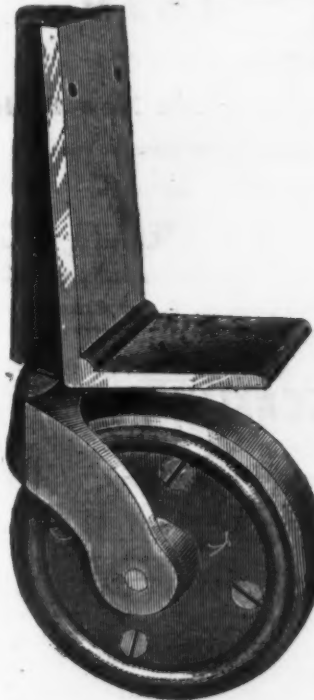
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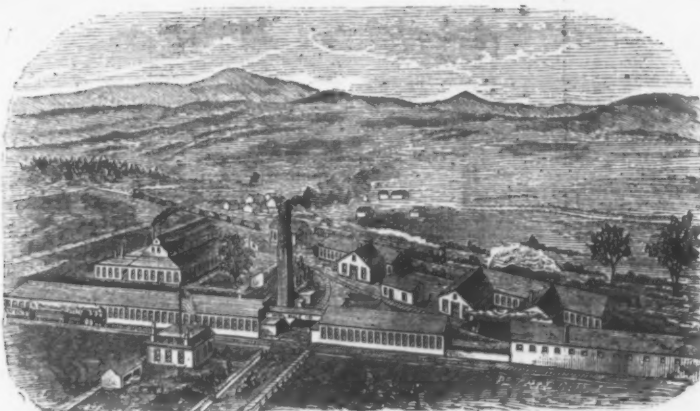
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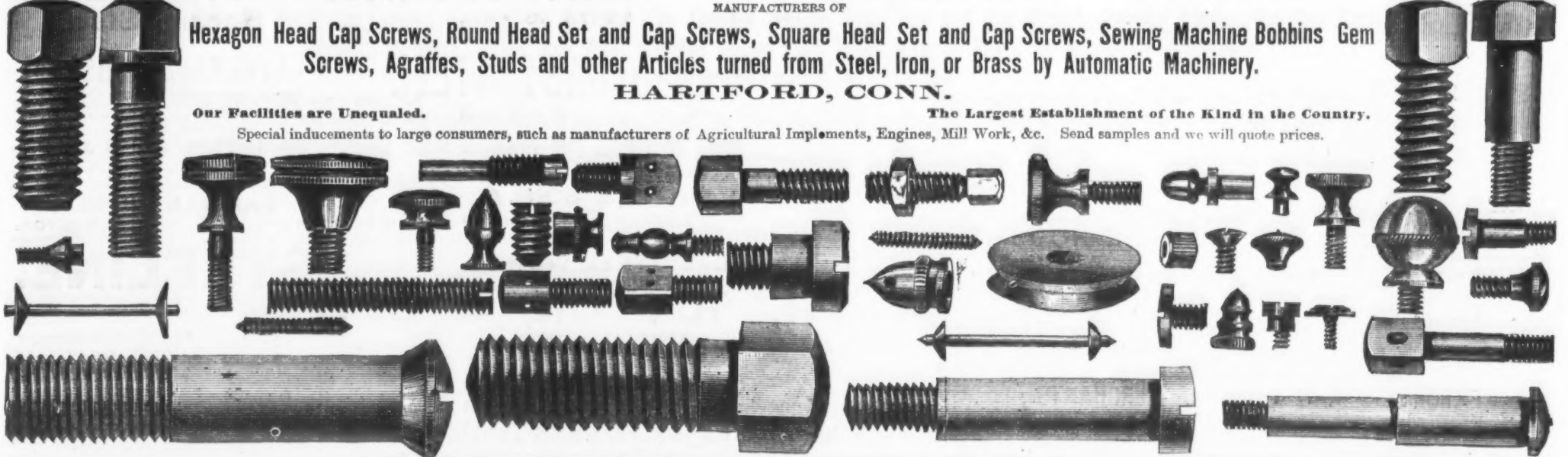
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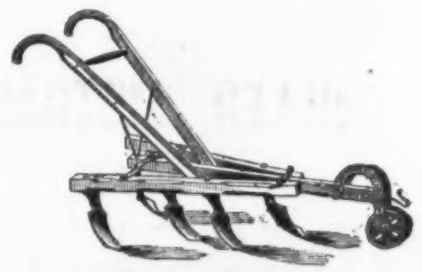
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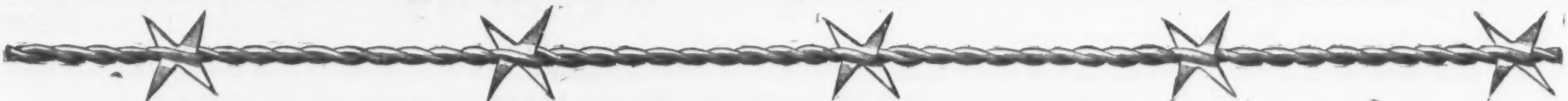
This Strop is better known and commands a larger sale than any Strop on the market, but for the benefit of those who may be unacquainted with it, we will say it has four sides, two of which are of leather, arranged upon the principle of the extensible belt; the other sides are bones of different degrees of fineness, the whole forming a perfect combination of Bone and Finishing Razor Strop. Our present manufacture of this particular Strop is so much superior to our previous products, that we feel a special pride in offering them even to their old friends.



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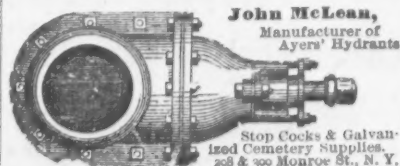
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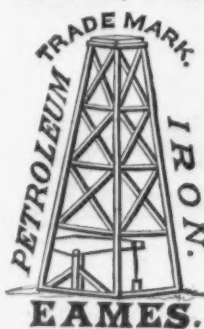
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 The Company warrants its rails equal in quality to any manufactured in the United States.
 Rails of any weight or section furnished on short notice. Orders for trial lots solicited.

Branch Office and P. O. Address, No. 48 Fifth Ave., Pittsburgh, Pa.
 D. McCANDLESS, Chairman. W. P. SHINN, General Manager.

JOHN WILSON'S CELEBRATED

BUTCHERS' KNIVES,
 BUTCHERS' STEELS,
 AND
 SHOE KNIVES.

THE TRADE MARK, IN ADDITION
 TO THE NAME,
 IS STAMPED UPON EVERY ARTICLE MANUFACTURED BY
JOHN WILSON.

BUYERS ARE SPECIALLY CAUTIONED AGAINST
 IMITATIONS OF THE MARK, AND THE
 SUBSTITUTION OF COUNTERFEITS
 BEARING THE NAME, "WILSON," ONLY.

GRANTED A.D. 1766, BY THE
 CORPORATION OF CUTLERS OF SHEFFIELD,
 AND PROTECTED BY ACT OF PARLIAMENT.

Works:--SYCAMORE STREET, SHEFFIELD. ESTABLISHED in the Year 1750

North Chicago Rolling Mill Co.

ESTABLISHED 1857. CAPITAL, \$3,000,000. INCORPORATED 1865.

Works at Chicago, Ill., and Milwaukee, Wis.

MANUFACTURERS OF

MERCHANT BAR, FISH PLATES, PIG METAL,
 IRON RAILS & BESSEMER STEEL RAILS.

CAPACITY OF WORKS.		
Fish Plates.....	20,000	tons
Merchant Bar.....	40,000	"
Pig Metal.....	80,000	"
Iron Rails.....	50,000	"
Steel Rails.....	25,000	"
Total Capacity per year.....	215,000	"

OFFICES:

17 Metropolitan Block, Chicago, Ill.
 37 Mitchell Block, Milwaukee, Wis.

O. W. POTTER, President, CHICAGO.
 S. P. BURT, Vice-President, NEW BEDFORD.
 S. CLEMENT, Treasurer, MILWAUKEE.
 R. C. HANNAH, Secretary, CHICAGO.

PYROLUSITE MANGANESE COMPANY,

MINERS, DEALERS AND EXPORTERS OF HIGH TEST

Crystallized Black Oxide of

Manganese

IN CRUDE STATE.

Suitable for the manufacture of Ferro-Manganese, Spiegeleisen, Bessemer Pig, &c. Also, fine ground and granulated, especially prepared for

STEEL, GLASS, PAINT, VARNISH AND DRYER MAKERS, OIL BOILERS, &c.

MANUFACTURERS OF SUPERFINE FLOATED

Standard Barytes, Gritless Ochre, Borate of Manganese, &c.

Office, 54 Cliff Street, New York.



LIGHTNING HAY KNIVES,

WEYMOUTH'S PATENT.



This knife is the best in use for cutting down hay and straw in mow and stack, cutting fine feed from bale, cutting corn stalks for feed, cutting peat and ditching marches.

The blade is best cast steel, spring temper, easily sharpened, and is giving universal satisfaction. A few moments' trial will show its merits, and parties once using it are unwilling to do without it. Its sales are fast increasing for export as well as home trade, and it seems destined to take the place of all other Hay Knives.

They are nicely packed in boxes, one dozen each, of 50 lbs. weight, suitable for shipping by land or water to any part of the world.

Manufactured only by

HIRAM HOLT & CO.,

East Wilton, Franklin Co., Maine.

For sale by the Hardware Trade generally.

Philadelphia Smelting Co.,

S. E. Cor. Twelfth and Noble Sts., PHILADELPHIA.

GENUINE BABBITT,

Guaranteed at a speed of 10,000 a minute, and at any pressure for 10 years.

ALL GRADES OF ANTI-FRICTION METALS.

DEOXIDIZED BRONZE,

Superior to Phosphor Bronze or any other alloy of Copper and Tin for Machinery Journals, Solders, Stereotype Metal, Gas and Steam Fittings and Fixtures, Brass and Composition Castings.

Send for circulars.

WIRE NAILS

French Points, Window Shade Nails,
 Upholstering, **WAGON NAILS**, Molding Nails
 (Sample Cards sent on application.)
 Electrottype, Roofing Nails,
 Barbed Caster Nails.

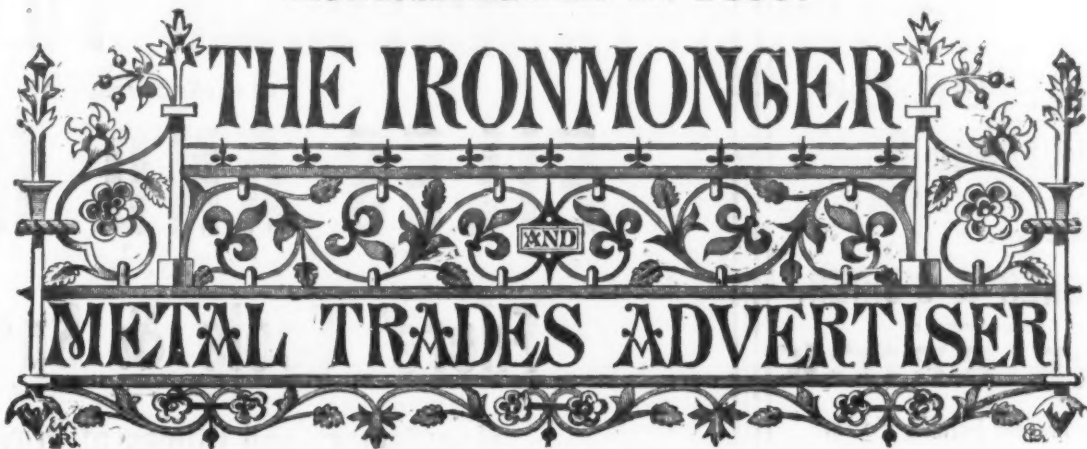
Veneer Nails, Label Tacks and small Nails of all kinds, Cabinet Nails, Barbed Lock Nails, Cigar Box Nails, &c., &c., put up in bulk, 5 lb. packages, 1 lb. papers, or as wanted.

AMERICAN WIRE NAIL CO.

Factory, Fifteenth and Madison Sts.

COVINGTON, KY.

ESTABLISHED IN 1859.



PUBLISHED EVERY SATURDAY.

THE OLDEST AND CHIEF REPRESENTATIVE OF THE IRON, HARDWARE AND METAL TRADES.

OFFICE: 44a CANNON STREET, LONDON, E. C.

ADVERTISEMENTS AND SUBSCRIPTIONS ARE RECEIVED AT THE VARIOUS OFFICES OF "THE IRON AGE," NAMELY:

NEW YORK OFFICE: DAVID WILLIAMS, Publisher of *The Iron Age*, 83 Reade street.

PITTSBURGH OFFICE: 77 Fourth Avenue—JOS. D. WEEKS, Manager and Associate Editor.
 PHILADELPHIA OFFICE: 220 South Fourth Street—THOMAS HOBSON, Manager.

CINCINNATI OFFICE: Builders' Exchange—T. T. MOORE, Manager.
 SOUTHERN OFFICE: Cor. Eighth and Market Streets, Chattanooga, Tenn.—S. B. LOWE, Manager.

SPECIAL FEATURES.

Notes of Novelties.—This is a department of the journal always watched with interest by the trade, as it contains an account, from week to week, of the novelties which manufacturers and inventors are introducing to the notice of the trade. These articles are freely illustrated.
Special Correspondents.—The *Ironmonger* has a deserved reputation for its special correspondence from all the principal Continental, British and manufacturing centers. The writers are gentlemen holding important positions in the districts with which they are connected, and possess facilities for acquiring information specially suited for the columns of the *Ironmonger*. *The Week, Legal Notes, Trade Notes, Bankruptcies, Foreign Notes, Colonial Jottings, Merchants' Circulars, Imports and Exports, &c.* are each departments of the journal, containing a digest of all matters of direct interest to the Iron, Hardware and Metal Trades. In addition to the above, there is a carefully classified list of Patents, together with Editorial Notes, French, Belgian and other Special Correspondence.

SUBSCRIPTIONS

to the *Ironmonger* and *Metal Trades' Advertiser*, with which is sent every fourth week the Foreign Supplement (see below), may commence from any date, but are not received for less than a year complete. The rate is \$5 per annum, inclusive of postage to any part of the world outside Great Britain. To every subscriber is presented, free, in the course of his year, a handsome and useful *Ironmongers' Diary and Text Book*, a work sold to non-subscribers at 75 cents.

ADVERTISEMENTS

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Size of Page—Nine Inches Deep by Six Inches Wide.

One Advertisement of every Series of 13 Monthly, 27 Fortnightly, or 53 Weekly, will be inserted in the *Ironmongers' Diary and Text Book*, published toward the end of each year, and presented to every Subscriber.

	53 INSERTIONS, each net.	27 INSERTIONS, each net.	13 INSERTIONS, each net.	7 INSERTIONS, each net.	3 INSERTIONS, each net.	2 INSERTIONS, each net.	1 INSERTION, net.
One page.....	Gold. \$17.50	Gold. \$18.75	Gold. \$20.00	Gold. \$22.50	Gold. \$25.00	Gold. \$30.00	Gold. \$35.00
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Quarter page.....	5.60	6.00	6.40	7.25	8.00	9.60	11.20
One-sixth page.....	3.95	4.25	4.50	5.10	5.65	6.75	7.75
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SPECIAL ISSUES.

In April and October of each year there is published a Special Issue, the circulation of which is not less than Twelve Thousand (12,000) copies

THE IRONMONGERS' DIARY AND TEXT BOOK.

This is an annual, presented free to every Subscriber to the *IRONMONGER AND METAL TRADES' ADVERTISER*. It contains a large number of ruled skeleton pages for diary and other entries, and in addition much useful reference information, varied from year to year. It is handsomely bound in cloth, gilt; and as copies are used in thousands of establishments for a whole year, it is obviously a medium of exceptional value for advertisements. Sold to non-subscribers at 75 cents.

THE FOREIGN SUPPLEMENT

Is published every fourth week in connection with the extensive and world-wide circulation of the *Ironmonger* itself. The dates of its publication in 1879 will be as follows:

JANUARY 11, FEBRUARY 8, MARCH 5, APRIL 5, MAY 3 and 31, JUNE 28, JULY 26, AUGUST 23, SEPTEMBER 20, OCTOBER 18, NOVEMBER 15, DECEMBER 13.

This Supplement is published in

FIVE LEADING COMMERCIAL LANGUAGES

of the world, including English, and is sent to all the countries where they are spoken, thus placing the contents of the *Ironmonger* not only within reach out in the native language of eighty millions of German, forty-two millions of French, twenty-eight millions of Italian, and fifty-one millions of Spanish speaking people; or, in all, over two hundred millions of inhabitants in the principal nations where the best purchasers of manufactured goods are to be found.

Advertisements are inserted in any language at the following

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Size of Page—13½ Inches Deep by 9½ Inches Wide.

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Two-thirds page.....	22.00	24.75	27.50	One-sixth page.....	7.50	8.45	9.40
Half page.....	17.00	19.15	21.25	One-eighth page.....	6.20	7.00	7.75
One-third page.....	12.50	14.10	15.65	One-sixteenth page.....	3.20	3.60	4.00

Advertisers will do well to use illustrations freely. Where economy of space is an object, a left page illustration and described in one language, can be suitably described in four or more languages on the opposite or right page without illustrating.

THE WHOLE FOREIGN HARDWARE TRADE,

so far as our experience of twenty years is concerned, will be covered by THE FOREIGN SUPPLEMENT at least twice a year. Thus a Price List or Advertisement inserted in the *Ironmonger* and FOREIGN SUPPLEMENT is a strikingly powerful and most efficient way of publicity, not to be compared with any of the other ordinary channels of communication.

B. KREISCHER & SONS, FIRE BRICK.

BEST AND CHEAPEST.
Established 1845.
Office foot of Houston Street, East River,
NEW YORK.

NEWTON & CO.,

ALBANY, N. Y., Manufacturers of

FIRE BRICK

Stove Linings,

Range and Heater Linings

Cylinder Brick, &c., &c.

M. D. Valentine & Bro

Manufacturers of

FIRE BRICK
And Furnace Blocks
DRAIN PIPE & LAND TILE.

Woodbridge, - - - N. J.

BORGNER & O'BRIEN,

Manufacturers of

FIRE BRICK

Edge Pressed Furnace Blocks,
CLAY RETORTS, TILES, &c.,
Twenty-third Street,
Above Race, PHILADELPHIA.
Twenty years' practical Experience.

PERTH AMBOY TERRA COTTA CO.,

Successors to

A. HALL & SONS, Perth Amboy, N. J.,
ARCHITECTURAL TERRA COTTA

FIRE BRICK.
170 Broadway, NEW YORK.

Brooklyn Clay Retort

AND
FIRE BRICK WORKS.

Manufacturers of Clay Retorts, Fire Bricks, Gas
House and other Tile, Cupola Brick, &c. Dealers in
and Miners of Fire Clay and Fire Sand. Clay bank at
Burl's Creek, New Jersey. Manufacture: Van Dyke,
Elizabeth, Richards and Partition Sts., Brooklyn, N. Y.
Office No. 28 Van Dyke St.

Watson Fire Brick Manufactory

ESTABLISHED 1836.

OHN R. WATSON, Perth Amboy, New Jersey.
Manufacturers of

FIRE BRICK,

For Rolling Mills, Blast Furnaces, Foundries,
Gas Works, Lime Kilns, Tanneries, Boiler
and Grate Setting, Glass Works, &c.
FIRE CLAYS, FIRE SAND, AND KAOLIN FOR SALE.

HENRY MAUER,

Proprietor of the

Excelsior Fire Brick & Clay

Retort Works,

Manufacturers of FIRE BRICK, HOLLOW
BRICK AND CLAY RETORTS.
WORKS PERTH AMBOY, NEW JERSEY
Office & Depot: 418 to 422 East 23d St., N. Y.

TROY FIRE BRICK WORKS

Troy, N. Y.

JAMES OSTRANDER & SON,
ESTABLISHED 1845,
Manufacturers of

FIRE BRICK,

Tuyeres, Tiles, Blast Furnace Blocks, &c. Miners and
Dealers in Woodbridge Fire Clay and Sand, and Staten
Island Kaolin.

Established 1864.

GARDNER BROTHERS,

MANUFACTURERS OF

STANDARD SAVAGE

Fire Brick, Tile & Furnace Blocks,
OF ALL SHAPES AND SIZES.

Clay Gas Retorts and Retort Settings,
AND

Miners and Shippers of Fire Clay.

OFFICE: 375 Penn Ave., Pittsburgh, Pa.
WORKS: Mt. Savage Junction, Md., and Lockport, Pa.

HALL & SONS,

FIRE BRICK,

Buffalo, N. Y.

MILLER'S BRICK PRESSES

(Established 1844).

FIRE AND RED BRICK,

And Brickmakers' Tools in General.

SAML. P. MILLER & SON,
309 South 5th St., Philadelphia.

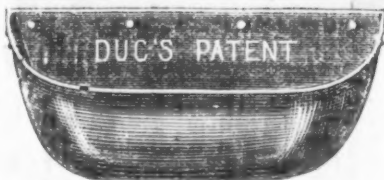
W. & J. TIEBOUT,

Manufacturers of

Brass, Galvanized & Ship
Chandlery Hardware,

No. 290 Pearl Street, New York.

DUG'S IMPROVED ELEVATOR BUCKET.



THE STORE-HOUSE BUCKET.
(Partial straight front.)
In 12 in., 14 in., 16 in. and 17 in. Sizes.

Send for Circular.

Made of Best Charcoal Stamping Iron.

No Corners to Catch.

Light Running and Very Durable.

The only Scientifically Constructed Elevator Bucket
in the Market.

T. F. ROWLAND,

Sole Manufacturer,

CONTINENTAL WORKS, Brooklyn, E. D., N. Y.



THE
MILL BUCKET.
In 3 1/2 in. to 10 in.
Sizes.

NICHOLSON FILE CO., Manufacturers of FILES AND RASPS.

ALSO

Filers' Tools & Specialties.

Manufactory and Offices at Providence, R. I.

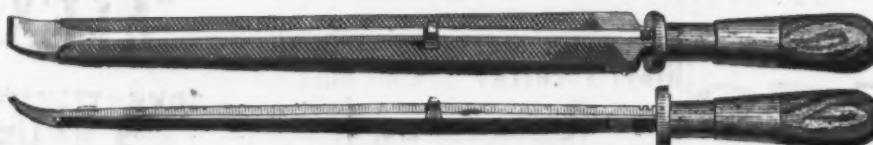
The following space will be used in illustrating our specialties, the matter being changed weekly.

FILE HOLDERS.

Patented June 12, 1877.



SURFACE FILE HOLDER.



VISE FILE HOLDER.

The object of the inventions herewith illustrated is to provide a device in which files may be firmly held for service in surface filing, and while in this condition, *readily sprung*, in order to give, at the will of the operator, more or less convexity to the working face of the file.

By the use of this device it is not essential that files to be used upon broad surfaces should be selected with the care usually bestowed to obtain a true convexity or "belly" to their sides; the trouble of such selection every master mechanic knows to be especially annoying and vexatious.

By its use, also, files may be more fully utilized and made to render greater service than without it: 1st, By insuring full use of the side, which, were the file crooked, could not otherwise be obtained; and 2d, By being able, when the file becomes slightly dulled, by increasing its convexity to lessen the number of teeth brought to bear upon the work, thus causing the lesser number of teeth which bear to penetrate or "bite" the work, without increased labor bestowed by the operator.

The utility of the *Surface File Holder* will at once be apparent to the mechanic, in its application to broad cast-iron surfaces.

The *Vise File Holder* will also be found a useful tool, particularly the smaller sizes, as by its use the file may be sprung to a degree enabling the workman to file in the exact spot required (always important where nicety of finish is requisite), in fact, utilizing the file in a manner never before accomplished.

These several file holders will be designated and their range of sizes understood by the following numbers:

Vise File Holder, No. 1, adapted to hold files	5 and 6 inches long.
" " " " 2, " " " "	8 " 10 " "
" " " " 3, " " " "	12 " 14 " "
Surface File Holder, No. 4, " " " "	12, 13 and 14 inches long.
" " " " 5, " " " "	14, 15 " 16 " "

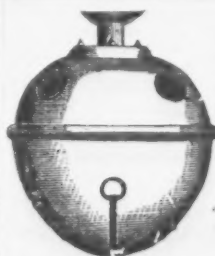
G. W. Bradley's Edge Tools.

Butchers' Cleavers,
Butchers' Choppers,
Axes and Hatchets,
Grub Hoes and Mattocks,
Mill Picks,
Box Chisels and Scrapers,

Ring Bush Hooks,
Ax Eye Bush Hooks,
Socket Bush Hooks,
Watt's Ship Carpenters' Tools,
Carpenters' Drawing Knives,
Coopers' and Turpentine Tools.

FOR SALE BY

MARTIN DOSCHER, Agent, 96 Chambers Street, N. Y.



Established 1838.
Bevin Bros. Mfg.
Co.,
Easthampton, Ct.
Manufacturers of
SLEIGH BELLS.
House, Tea, Hand,
Gong Bell &c.
Bell Metal Kettles.

John T. Lewis & Bros
No. 231 South Front St.,
PHILADELPHIA.



TRADE MARK.

MANUFACTURERS OF

Pure White Lead, Red Lead, Litharge,
Orange Mineral, Linseed Oil,
AND PAINTERS' COLORS

Brooklyn White Lead Co.



TRADE MARK.

White Lead, Red Lead & Litharge.
59 Maiden Lane, NEW YORK.
FISHER HOWE, TREASURER.

JOHN JEWETT & SONS

Manufacturers of the well-known brand of
WHITE LEAD.



TRADE MARK.

ALSO MANUFACTURERS OF

LINSEED OIL.

182 Front Street, NEW YORK.



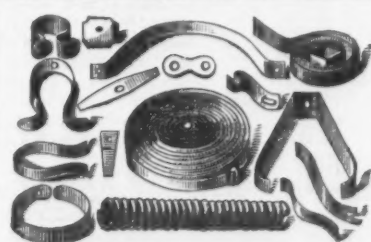
TRADE MARK.

The Atlantic White Lead
and Linseed Oil Co.,

MANUFACTURERS OF

White Lead (Atlantic), Red Lead,
Litharge & Linseed Oil.

ROBERT COLGATE & CO.,
287 Pearl Street, New York



DUNBAR BROS.,

Manufacturers of

Clock Springs and Small Springs

of every description, from best Cast Steel.

BRISTOL, CONN.

Torrey's Door Springs.

P. R. DUNNE,

Manufacturer,



182 Fulton St.,
NEW YORK.

ORGANS

13 Stops, 5 set Reeds, Stool, Book,
only \$65. Pianos, Stool, Cover &
Book only \$12.75. Paper free.
D. F. BRATT, Washington, N. J.

PHILADELPHIA.

(Corrected Weekly by Lloyd, Supple & Walton.)
Terms, 30 days. For 60 or 90 days, interest added at 10 per cent. per annum.

Apples.
Peter Wrights, 30 lb. gold, 10¢ net
Over 250 lbs. 11¢ net
Eagle (American) 90 20¢ net

Apple Papers.
Reading No. 72, per doz 85¢ net
No. 74, 70¢ net
No. 75, 70¢ net
No. 76, 70¢ net
No. 77, 70¢ net
No. 78, 70¢ net
No. 79, 70¢ net
No. 80, 70¢ net
No. 81, 70¢ net
No. 82, 70¢ net
No. 83, 70¢ net
No. 84, 70¢ net
No. 85, 70¢ net
No. 86, 70¢ net
No. 87, 70¢ net
No. 88, 70¢ net
No. 89, 70¢ net
No. 90, 70¢ net
No. 91, 70¢ net
No. 92, 70¢ net
No. 93, 70¢ net
No. 94, 70¢ net
No. 95, 70¢ net
No. 96, 70¢ net
No. 97, 70¢ net
No. 98, 70¢ net
No. 99, 70¢ net
No. 100, 70¢ net

Ases.
Mans' Red Warrior, per doz 30¢ net
Red Indian, 30¢ net
Red Chieftain, 30¢ net
Crown Prince, 30¢ net

Augers and Auger Bits.
Baker Nut Augers, 10¢ net
Cook's Augers, 10¢ net
Watrous' Ship Augers, 10¢ net
Benjamin Pierce Auger Bits, 10¢ net
Griwald Auger Bits, 10¢ net
Cook's, 10¢ net
Jennings', 10¢ net
Bonney's Pat. Hol. Augers, list 8¢ doz, 10¢ net
Stearns' Pat. Hol. Augers, list 8¢ doz, 10¢ net

Balances.
Light and Common, 10¢ net

Bells.
Bever Bros. Mfg. Co. Light Hand Bells, 10¢ net
Swin Pattern Hand Bells, 10¢ net
Connell's Door Bells, 10¢ net
Gt. Western & Kentucky Cow, new list, 10¢ net

Belt and Rivet Clippers.
Chambers' No. 1, 10¢ net
No. 2, 10¢ net
No. 3, 10¢ net

Boring Machines.
Upright, with Augers, 10¢ net
without Augers, 10¢ net
Angular, with Augers, 10¢ net
without Augers, 10¢ net

Bolts.
Eastern Carriage Bolts, 10¢ net
Philadelphia, new list 10¢ net
Stanley, Wrought Shutter, 10¢ net

Braces.
Barber's, 10¢ net
Buckley, 10¢ net
American Ball, 10¢ net

Butts.
Cast Fast Joint, 10¢ net
Broad, 10¢ net
Cast Loose Joint, 10¢ net
Acorn, Loose, 10¢ net
Jap'd, 10¢ net
Mayer's Loose Joint, 10¢ net
Wrought Loose Joint, 10¢ net
Table Hinges and Back Plates, 10¢ net
Narrow, Fast, 10¢ net
Loose Joint, 10¢ net

Blind Butts.
Parker, 10¢ net
Clark, 10¢ net
Shepard, 10¢ net
Lull & Porter, 10¢ net
Butler's, 10¢ net

Chains.
German Halter and Coll. new list 10¢ net
Galvanized, 10¢ net
Best Proof Coll. 10¢ net

Chisels.
Socket Framing, 10¢ net
Butcher's, 10¢ net

Casters.
Bed, 10¢ net
Plate, 10¢ net
Coffee Mills, Box and side, 10¢ net
Enterprise, 10¢ net

Cutlery.
Walden Pocket, new list net
Lancaster, Fry & Clark, Russell & Co., Lamson & Goodnow Mfg. Co. and Meriden Cutlery Co., Manufacturers' prices net

Drawing Knives.
Hart Mfg. Co., 10¢ net
Adjustable Handle, 10¢ net

Fry Pans.
Tinned, 10¢ net
No. 1, 10¢ net
No. 2, 10¢ net
No. 3, 10¢ net
No. 4, 10¢ net
No. 5, 10¢ net
No. 6, 10¢ net
No. 7, 10¢ net
No. 8, 10¢ net
No. 9, 10¢ net
No. 10, 10¢ net

Files.
Nicholson, 10¢ net
Butcher, 10¢ net
Spencer, 10¢ net

Fluting Machines.
Each, 10¢ net
No. 1, 10¢ net
No. 2, 10¢ net
No. 3, 10¢ net
No. 4, 10¢ net
No. 5, 10¢ net
No. 6, 10¢ net
No. 7, 10¢ net
No. 8, 10¢ net
No. 9, 10¢ net
No. 10, 10¢ net

Hammers.
Yorkes & Plumb's, 10¢ net
Hatchets, 10¢ net
Hunt, 10¢ net

Hinges.
Strap and T, 10¢ net
Horse Nails, 10¢ net
Ausable, 10¢ net
Blind and Pointed, 10¢ net
Globe, 10¢ net
Clinton, 10¢ net
Southern, all sizes, 10¢ net
Discount on Ausable and Clinton, 10¢ net

Locks and Keys.
Bradford, 10¢ net
Gaylord Cabinet, 10¢ net
American Padlock, 10¢ net
Scandinavian Padlock, 10¢ net
No. 1, 10¢ net
No. 2, 10¢ net
No. 3, 10¢ net
No. 4, 10¢ net
No. 5, 10¢ net
No. 6, 10¢ net
No. 7, 10¢ net
No. 8, 10¢ net
No. 9, 10¢ net
No. 10, 10¢ net

Lanterns.
Square Candle and Oil, 10¢ net
Circular, 10¢ net
Guards, 10¢ net
Lawn Mowers, Pennsylvania, 10¢ net
Philadelphia, 10¢ net
Ecclesior, 10¢ net

Lawn and Garden Pumps.
List 10¢ net

Machetes.
Long and Short Cutter, 10¢ net
Pennsylvania Pattern, 10¢ net

Melasses Gates.
Enterprise Mfg. Co.'s Measuring Faucets, 10¢ net
Stebbins' Gate, 10¢ net
Lincoln's, 10¢ net
Lancaster, 10¢ net
Brass Liquor Cocks, 10¢ net
Cork Lined, 10¢ net

Meat Cutters.
Dixon's, 10¢ net
Woodruff, 10¢ net
Stove, 10¢ net
Hale's, 10¢ net
American, 10¢ net
Butcher's, 10¢ net
Enterprise, 10¢ net

Planes.
Ohio Tool Co., 10¢ net
Scioto, 10¢ net
Auburn, 10¢ net
New York Tool Co., 10¢ net
Baker, 10¢ net
Plane Irons, Ohio Tool Co., 10¢ net
Butcher's, 10¢ net
Plumbe and LeVoy, 10¢ net
Stanley's Adjustable, 10¢ net
Non-Adjustable, 10¢ net

Picks.
New list, 10¢ net

Pumps.
Bickford, 10¢ net
Rules, 10¢ net
Stanley Iron, 10¢ net

Spoons.
Plated, 10¢ net
German Silver, 10¢ net
Britannia, Boardman's, 10¢ net
Parker's, 10¢ net
Tinned, 10¢ net
by case, 10¢ net

Stocks and Dies.
Stove Polish, 10¢ net
Dixon, 10¢ net
Onyx, 10¢ net
Tacks, 10¢ net
Shoe Nails, 10¢ net
Double Pointed Tacks, 10¢ net

Traps.
Genuine Onoda-Newhouse, 10¢ net
Im. Onoda-Newhouse list, first qual., 10¢ net
Viaca-Solid Box, Trenton new list, 10¢ net

Wrenches.
Agricultural, 10¢ net
Cosa's Genuine, 10¢ net
Mechanics', 10¢ net
Mail Bar, 10¢ net
Philada. Tool Co. Duplex, 10¢ net

Wire.
Bright or Anne'd, 10¢ net
No. 19 to 26, 10¢ net
No. 27 to 30, 10¢ net
Coppered, 10¢ net
Tinned Broom Wire, 10¢ net
Galvanized, 10¢ net
Wingless Novelty No. 10, 10¢ net
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Flat Bar.
10¢ net
10¢ net
10¢ net
10¢ net
10¢ net
10¢ net
10¢ net
10¢ net
10¢ net
10¢ net

Heavy Bands.
10¢ net
10¢ net
10¢ net
10¢ net
10¢ net
10¢ net
10¢ net
10¢ net
10¢ net
10¢ net

Light Bands.
10¢ net
10¢ net
10¢ net
10¢ net
10¢ net
10¢ net
10¢ net
10¢ net
10¢ net
10¢ net

Hoop Iron.
10¢ net
10¢ net
10¢ net
10¢ net
10¢ net
10¢ net
10¢ net
10¢ net
10¢ net
10¢ net

Round and Square.
10¢ net
10¢ net
10¢ net
10¢ net
10¢ net
10¢ net
10¢ net
10¢ net
10¢ net
10¢ net

Deal Iron.
10¢ net
10¢ net
10¢ net
10¢ net
10¢ net
10¢ net
10¢ net
10¢ net
10¢ net
10¢ net

Half Oval and Half Round.
10¢ net
10¢ net
10¢ net
10¢ net
10¢ net
10¢ net
10¢ net
10¢ net
10¢ net
10¢ net

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10¢ net
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No. 15 to 17, 10¢ net
No. 18 to 21, 10¢ net
No. 22 to 24, 10¢ net
No. 25 to 28, 10¢ net
No. 29 to 32, 10¢ net
No. 33 to 36, 10¢ net
No. 37 to 40, 10¢ net
No. 41 to 44, 10¢ net
No. 45 to 48, 10¢ net
No. 49 to 52, 10¢ net
No. 53 to 56, 10¢ net
No. 57 to 60, 10¢ net
No. 61 to 64, 10¢ net
No. 65 to 68, 10¢ net
No. 69 to 72, 10¢ net
No. 73 to 76, 10¢ net
No. 77 to 80, 10¢ net
No. 81 to 84, 10¢ net
No. 85 to 88, 10¢ net
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No. 93 to 96, 10¢ net
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10¢ net
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10¢ net
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No. 18 to 21, 10¢ net
No. 22 to 24, 10¢ net
No. 25 to 28, 10¢ net
No. 29 to 32, 10¢ net
No. 33 to 36, 10¢ net
No. 37 to 40, 10¢ net
No. 41 to 44, 10¢ net
No. 45 to 48, 10¢ net
No. 49 to 52, 10¢ net
No. 53 to 56, 10¢ net
No. 57 to 60, 10¢ net
No. 61 to 64, 10¢ net
No. 65 to 68, 10¢ net
No. 69 to 72, 10¢ net
No. 73 to 76, 10¢ net
No. 77 to 80, 10¢ net
No. 81 to 84, 10¢ net
No. 85 to 88, 10¢ net
No. 89 to 92, 10¢ net
No. 93 to 96, 10¢ net
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No. 25 to 28, 10¢ net
No. 29 to 32, 10¢ net
No. 33 to 36, 10¢ net
No. 37 to 40, 10¢ net
No. 41 to 44, 10¢ net
No. 45 to 48, 10¢ net
No. 49 to 52, 10¢ net
No. 53 to 56, 10¢ net
No. 57 to 60, 10¢ net
No. 61 to 64, 10¢ net
No. 65 to 68, 10¢ net
No. 69 to 72, 10¢ net
No. 73 to 76, 10¢ net
No. 77 to 80, 10¢ net
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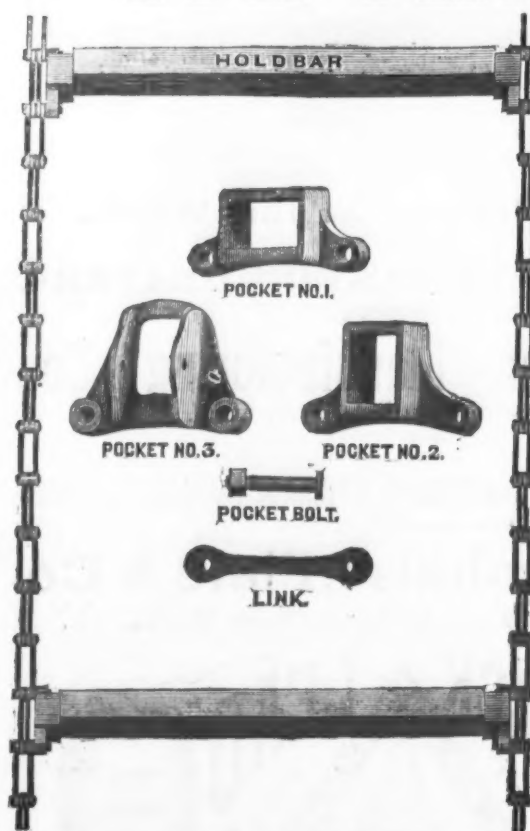
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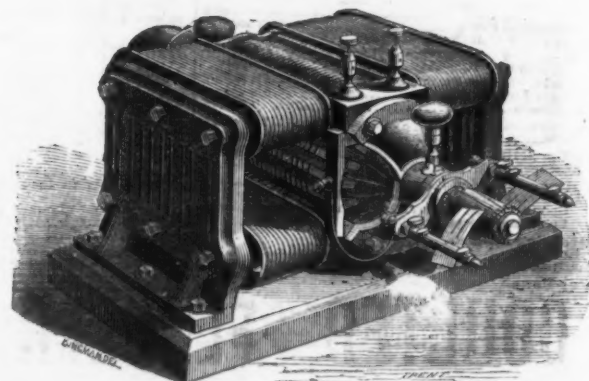
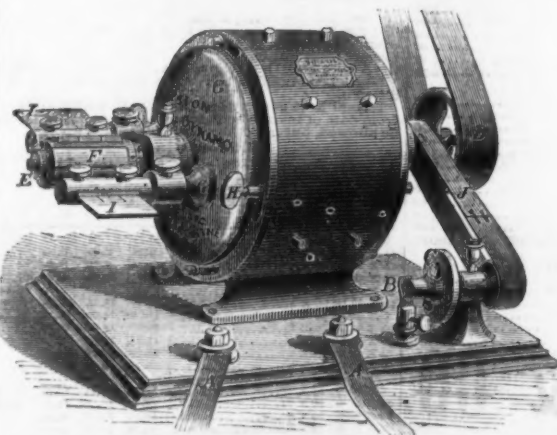
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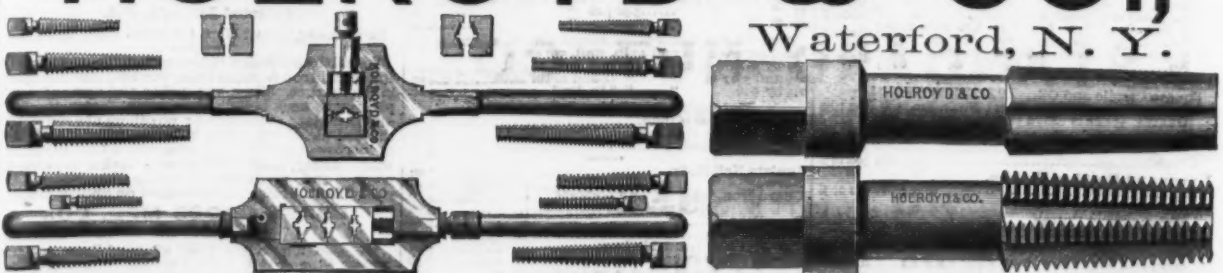
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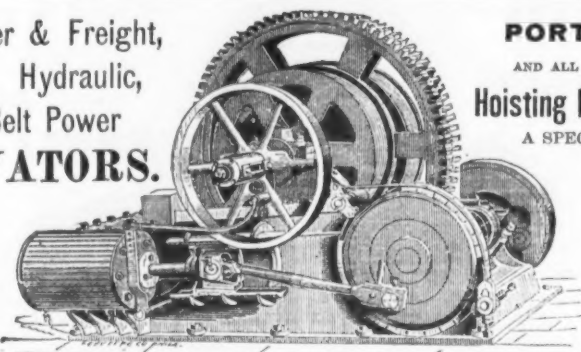
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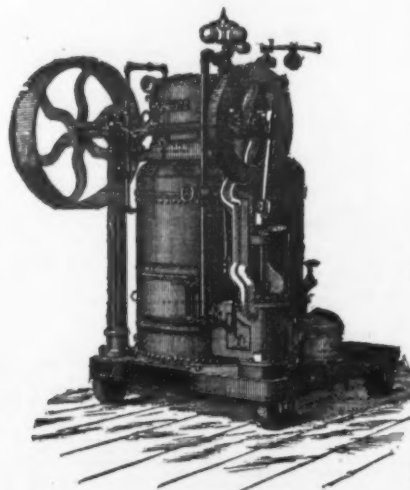


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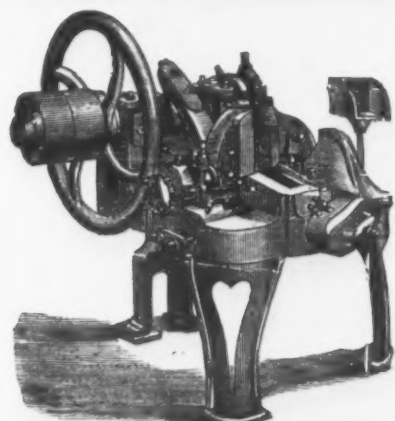
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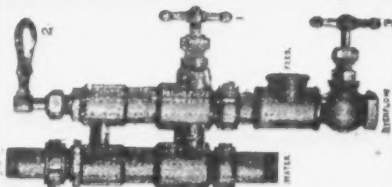
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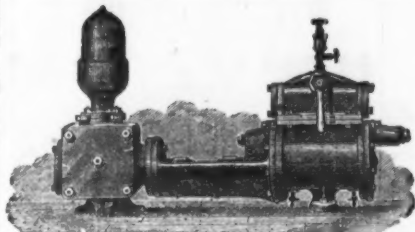
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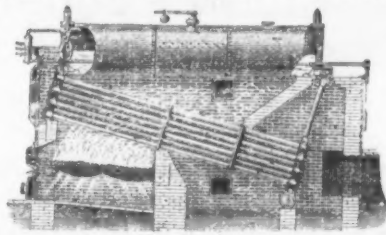
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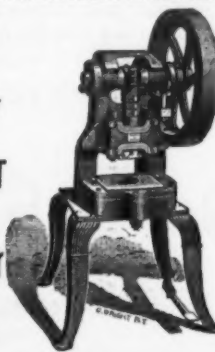
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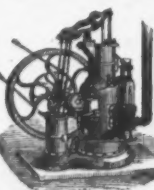
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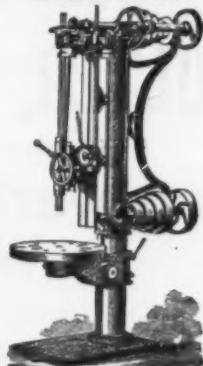
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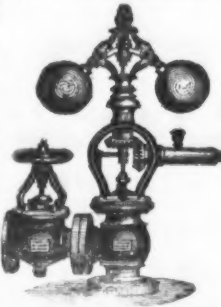
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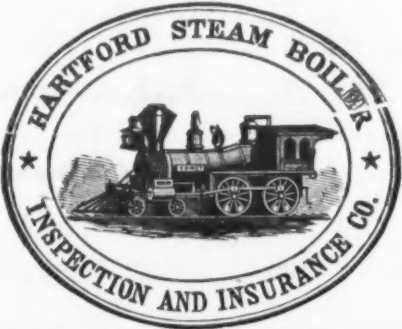
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2 1/2	31.00	35.00	3.00	9.00
2 3/4	35.00	41.00	3.50	11.00
3	40.00	46.00	3.75	12.00
3 1/4	45.00	52.00	4.00	14.00
3 1/2	50.00	58.00	4.50	17.00
3 3/4	55.00	64.00	5.00	21.00
4	60.00	70.00	5.50	25.00
4 1/4	65.00	76.00	6.00	31.00
4 1/2	70.00	82.00	6.50	37.00
4 3/4	75.00	88.00	7.00	44.00
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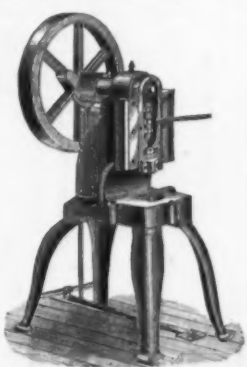
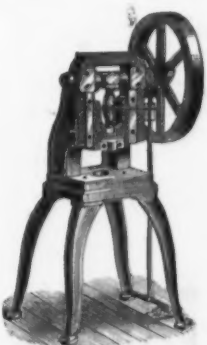
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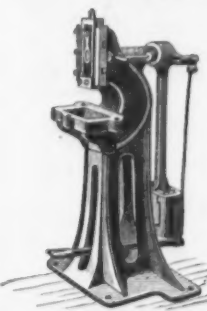
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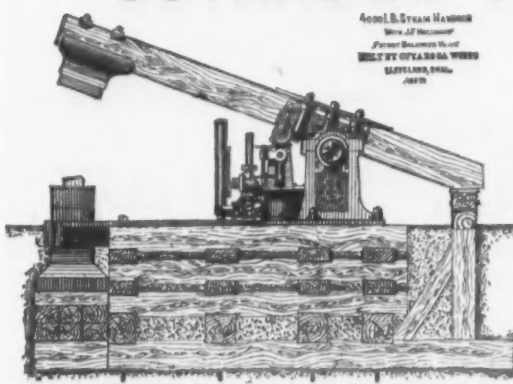
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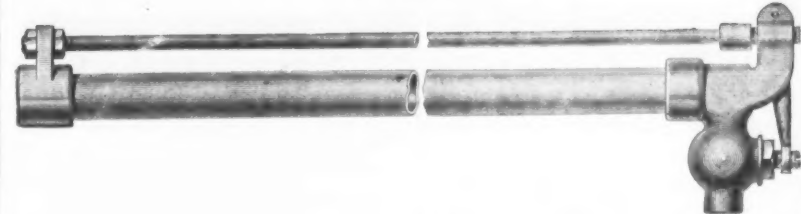
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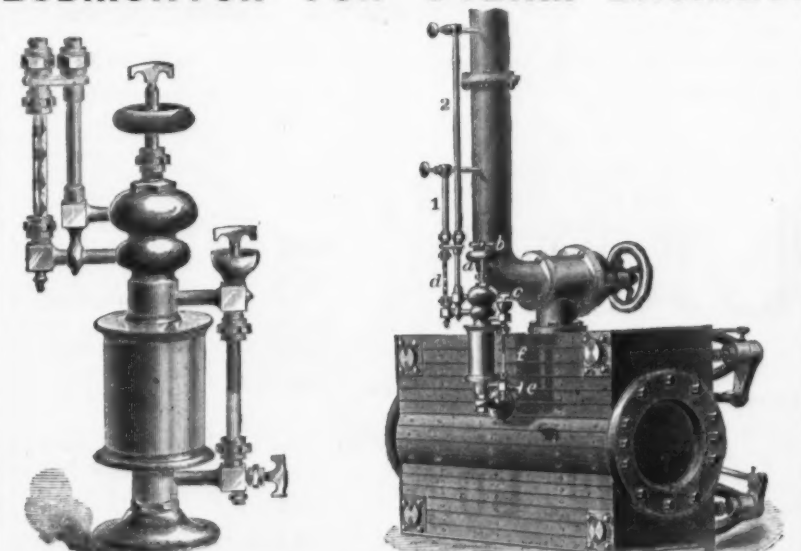
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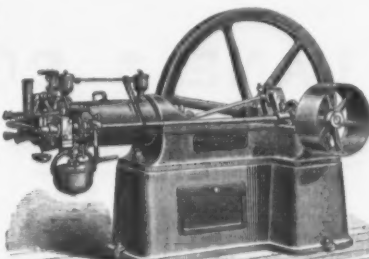
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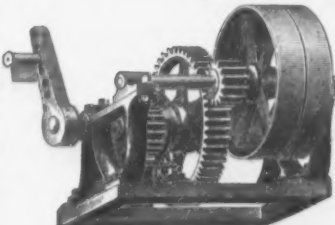
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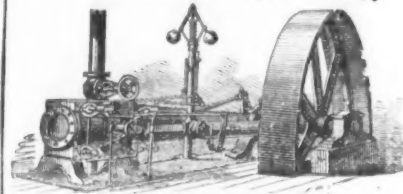
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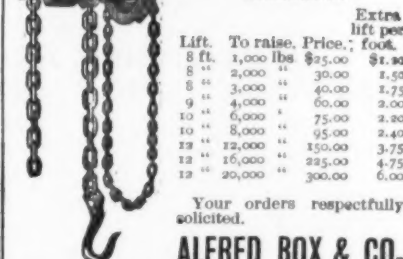
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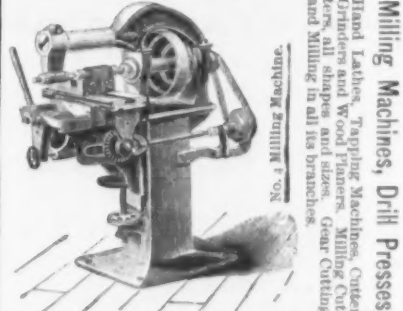
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